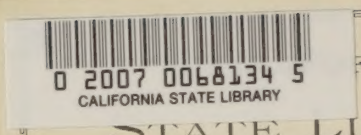
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THE

ANNUAL REPORT

OF THE

BOARD OF EDUCATION,

TO THE

COMMON COUNCIL OF SAN FRANCISCO,

SEPTEMBER 1st, 1854.

SAN FRANCISCO:
WHITTON, TOWNE & CO., PRINTERS, EXCELSIOR JOB OFFICE,
151 CLAY STREET, NEAR MONTGOMERY.
1854.

REPORT.

To the Honorable, the Common Council:

In compliance with Sec. 12, Chap. VI. of City Ordinances, (see Corporation Manual, page 77,) requiring the Board of Education to report "not more than ten and not less than five days before the Annual Charter Election," we, the undersigned, Members of the Board of Education of the City of San Francisco, beg leave to submit to your Honorable body the following as our Annual Report, detailing our official acts from the date of our appointment to the present time.

APPOINTMENT OF SUPERINTENDENT.

Our first act, at the commencement of our official duties, was the appointment of a Superintendent of Public Schools, —the former Superintendent (Mr. Nevins) having resigned. Our choice fell upon Mr. Wm. H. O'Grady, an Alumnus of the Vermont University, and who, for a year and a half previous to the date of his appointment by us (Oct 25, 1853,) had conducted School No. 1, Rincon Point.

CONDITION OF THE SCHOOLS.

On looking about us for our further duties, we found much to be done; and from the fact that our predecessors made no report at the close of their term, thus giving us no basis for our operations, we experienced no small embarrassment.

We found the Schools,—seven in number,—with the exception of Spring Valley, No. 6, in mere temporary build-

ings, suitable in no single respect for school purposes,—small, badly constructed, inconvenient, dilapidated, and wretched in the extreme. It was evident to us that our predecessors had not been provided with means for placing the Schools in good condition, upon a proper basis. No appropriation for building had been made by the Common Council. There was hardly a sufficient amount furnished for defraying mere current expenses, graduated upon a penurious and miserly scale.

Finding the Schools in such a condition, we spared no effort to relieve them, as far as possible, before the setting in of the rainy season, then near at hand.

School No. 3, which had been situated in a locality of physical and moral impurity, on Dupont Street,—which made a change imperative,—had been removed to more commodious and suitable quarters on Washington Street, where we fitted up and arranged with propriety and decency for its use the rear part of the basement of the new brick church, and the old frame building formerly used as a church, belonging to the Baptist society, for the same monthly rent as had been paid for the building on Dupont Street,—$175.

School No. 2, "Happy Valley," was removed from the hovel on Minna Street, in which it had been suffered to remain from the time of its establishment, (Nov. 17, 1851,) to a comparatively large, well constructed, comfortable and commodious building on Bush Street, between Montgomery and Sansome Streets, where it was well attended during the Winter, and where it continued prosperous and flourishing until the 21st of last May, when it was removed to its present permanent location, in the new brick building situated at the corner of Bush and Stockton Streets.

School No. 4 was removed from an old tottering building in which it had been kept from the time of its commencement, (June 7th, 1852,) situated on the North West corner of Montgomery Street and Broadway, to a larger, stronger, and more commodious building, on the North West corner

of Broadway and Dupont Streets, where it is at present conducted.

School No. 5, situated on Washington Square, corner of Powell and Filbert Streets, was found in a very bad condition:— it occupied the first floor of the old building known as the Powell Hotel, built over a gully on the lower side of the Square, which,—being stopped of its natural sewerage by the intersection of Powell Street, caused all foul and decaying matter to be carried down under and around the building, causing effluvia to arise dangerous to the health of the pupils and teachers. Besides, in the upper part of the building families of different nations resided, who,—not understanding or appreciating Public Schools,—were a constant source of annoyance. But, bad as were the building, location, &c., no better could be found in any part of the District at that time; and not even the cheapest tolerable frame building could have been erected and put in readiness before the setting in of the rains. We therefore graded the lot, and put this, and all the other buildings from which the Schools had not been moved, in as good repair as possible for the approaching Winter.

With these removals of the three largest Schools, and the slight improvements in the buildings for the others, there was an increased attendance during the term, notwithstanding the severity of the rainy season,—particularly the early part,—over the preceding or Autumn term.

Knowing the relation that exists between a good schoolhouse and a good School, we have kept this subject, viz: the wants of the Schools, constantly before us, determined to have an adequate number of the best-planned and best-constructed houses that time and means would warrant, erected as soon as possible, in order to relieve the Schools from their miserable condition; believing that the best teaching and the best directed efforts, under circumstances so unfavorable, are not only nearly *fruitless*, but that moneys thus expended are almost the same as *thrown away*. We determined to

erect,—not only large, substantial and commodious,—but even *elegant* buildings, in order that a rational division of labor and a proper classification might be effected; that the taste, as well as the "common mind" and heart, might be cultivated, and that a *true system of Education*, in its broadest sense, might be put in successful operation.

NEW BUILDING FOR SECOND DISTRICT.

With this entertained view, and this determination, we enlarged and fitted up for the use of School No. 2 the brick church, situated on a subdivision of the fifty vara School lot No. 301, purchased by the Common Council from Dr. Jesse Boring.

The building, as placed in our hands for enlargement, measured sixty feet in length by thirty in width, and was one story fourteen feet high. As it now stands, completed, it measures seventy by thirty feet surface, and is two stories high, each fourteen feet in the clear. There are eight rooms, in the building, besides the halls: three study rooms for three grades,—two on the first floor for Infant and Intermediate, and one on the second floor for the Grammar Department; four recitation rooms,—two above and two below; and one room for the principal Teacher. The lower walls of the building, which were finished when placed in our hands, have the plastering and finish laid upon the brick work; the upper walls are furred, lathed, plastered and hard finished. The floors are of yellow hard pine, tongued and grooved. *Ventilation* is secured by flues carried up in the walls, and by box-frame windows hung on weights, which slide down from the top. *Light* is admitted so as to reach the Pupils, seated at study, on the *side*. Black-boards, wrought in the walls, are amply provided for the whole school, in both the study and recitation rooms. The *furniture*,—including desks for the grammar and intermediate departments, seats for the study and recitation rooms, platforms, tables, &c.,— is made of red-wood, pine, black walnut and "tamana" wood.

According to the present arrangement the building can seat three hundred and twenty pupils, giving to each in the grammar department twelve square feet of space, and one hundred and sixty-eight cubic feet of air. On the first floor the Pupils are somewhat crowded at present. It is to be regretted that the building is not larger,—that it does not now accommodate the entire District. But, considering that it was originally designed for another purpose, we feel confident that its transformation is all that could have been expected. It will yet answer a good purpose. No doubt, when other buildings shall be erected in the vicinity, to draw off some of the Pupils, it will be quite adequate to the wants of that part of the City in which it is situated. Mr. Charles Homer enlarged and finished this building, according to contract, for $9000.

BUILDING LOTS, ENCUMBRANCES, &c.

We would here beg leave to state that our efforts in behalf of the Schools, have been, throughout our whole term, much embarrassed, and comparatively of but of little avail, owing to difficulties caused by squatters and others, who have encumbered nearly all the lots set apart for school purposes. The above mentioned building for School No. 2 was not completed until the tenth of June,—although commenced early in the Spring,—because of this. At present, out of the original fifty vara lot No. 301, there is only a subdivision measuring eighty-seven and a half feet by eight-three and a half feet in possession of the City.

In laying out our plans, we had designed to erect buildings for at least *four* of the Districts,—the First, Third, Fourth and Fifth. For sites, we proposed to make arrangements as follows:—to obtain possession of School lot No. 732, corner of Fremont and Harrison streets, for the first district, Rincon Point; to sell or exchange No. 345, on California street, for more eligible site for the third district; No. 462, corner Filbert and Kearny street, for one in the

fourth district; and No. 695, corner of Stockton and Francisco streets, for more suitable lot for the fifth district.

Out of nine lots set apart, September 17th, 1852, by the Commissioners of the Funded Debt, Nos. 345 and 695 were alone unincumbered. The others we hoped to obtain or exchange by compromise; and placed reliance upon some arrangement of this kind; for the fund to be placed at our disposal — the proceeds of the sale of $100,000 of the City Bonds,—was estimated to be no more than barely sufficient for erecting and furnishing the requisite number of buildings. It was therefore necessary to affect a compromise, or to obtain building sites by some other means than by direct purchase. But notwithstanding the Common Council passed an ordinance "authorizing the Board of Education to sell or exchange School lots," yet it was found to be illegal. Having made all preparations necessary for building, — received plans and specifications, advertised for proposals to build, &c., we could not easily, and we did not wish to, retrace our steps. Such was the condition of the Schools, that we deemed it our imperative duty to take measures for their relief.

NEW BUILDINGS FOR DISTRICTS NOS. 4 AND 5.

Having no right to sell, exchange, or lease the School lots, we determined to make use of any lot, in any district, wherever located, — if buildings suitable for the purpose, could be erected upon them; and also to purchase lots, if necessary, for other districts, where Schools were most needed. Accordingly, having duly advertised, and received proposals, we awarded a contract for the erection of two brick buildings, for the fourth and fifth districts, to Mr. Charles Homer, a builder, for $46,300. One of the buildings, at $25,000, for the fourth district, was to be erected on the fifty vara lot No. 418,* on Union street, between Kearny and Montgomery streets, according to plans and

* Lot No. 418 was purchased from Captain J. L. Folsom, for $7000.

elevations drawn by J. F. Meyer, Architect; the other building at $21,300, was to be erected upon School lot No. 695, corner of Stockton and Francisco streets, according to plans and elevations drawn by W. H. Ranlett, Esq., Architect. These buildings are as follows:

No. 4 is one hundred feet long by forty-four feet wide in the main, and sixty-two feet wide across the front projections, — the form of the plan being like a "half letter" block capital T — thus ⊤. The building is two stories high, — the first story fourteen and one-half feet, and the second fourteen feet, in the clear. The walls are in the main four courses of bricks in thickness, and five at the pilasters. All walls within are furred, lathed, plastered and hard finished. There are besides the halls, seventeen rooms: three large study rooms for three departments, as for No. 2; the infant department can be divided into two rooms by means of sliding doors; the intermediate has attached to it two large recitation rooms facing out upon the portico in front; and the grammar department has three class rooms, — two in the rear part of the building, and one large one in front facing out upon the portico; the other apartments are for toilet rooms for both sexes, on first and second floors, teacher's room, library, apparatus, collection rooms, &c. On the first floor there are eight doors for ingress and egress, and there are two broad stairways leading to the second floor. Ventilation is secured by flues, &c., as for No. 2. Light is so arranged as to come in over the backs and sides of the pupils. Black-boards of a composition such as to secure hardness, smoothness and durability, are wrought in the walls, in all the study and recitation rooms; in the recitation rooms generally on two sides, opposite the light; in the study rooms behind the teacher's desk, so as to enable him to explain and illustrate all subjects taught, by means of characters presented to the eye; also opposite to the desk, and on the sides of the room, for the immediate use of classes.

Not finding it in our power to obtain the most improved, elegant and durable furniture, — with cast-iron standards for seats and desks, — and believing that some future Board of Education may think proper to obtain for all the Schools such furniture, we have secured a supply, made principally of red wood, which, when well finished, will unite sufficient beauty with strength and durability. In the grammar department, the seats and desks are four feet long, each for two pupils. In height and width they are arranged in four grades, the highest desk (side next to the pupil) is twenty-eight inches; the difference between the grades is about an inch. In the intermediate departments there are also four grades; the highest there being the lowest in the grammar department. In the centre of the top of each desk a metallic ink-stand with rose-wood cover lined with cloth or chamois leather, is fixed so as to prevent the spilling or evaporation of ink.

In the infant department the pupils are seated upon benches arranged for four each, and made in four grades, ten, eleven, twelve and thirteen inches high, respectively. These seats are furnished with little mahogany boxes running across the top of the seat, one for each pupil, which will not only hold the books, slates, &c., but will keep the children apart; will afford natural rests for their elbows; and, being eight inches wide at the bottom and six at the top, will give an easy and natural seat. This building will accommodate five hundred pupils.

No. 5 is 90 feet long by 40 feet wide, surface, besides the front and rear projections on the sides, each measuring 12 feet from the main building by 24 feet in length. The plan is nearly that of a *Greek Cross*, the projections representing the short arms of the cross. The building is two stories high, — fifteen feet in the lower, and 14½ feet clear in the upper story. The walls, partitions, ceilings, — the light, ventilation, black-boards, furniture, &c., are wrought and arranged as nearly like No. 4. as possible for a building

of a different plan. Besides the halls there are fifteen rooms:—— three study rooms arranged for three departments, as in No. 4; the rest are recitation rooms, toilet, library, teacher's, apparatus rooms, &c. Although the main body of this building is not so large as No. 4, yet taking into account the front and rear projections, it will give accommodation to about the same number of pupils as No. 4.

According to contract, both of these buildings were to have been completed by the 10th of August ultimo; but owing to difficulties in the financial department of the city, they have been unavoidably delayed. No. 5 is now nearly completed; but No. 4 will not be ready for occupation before the 20th inst.

LOCATION OF BUILDINGS.

The location of No. 5 has by some been objected to. We wish to have it understood that this location was not our choice; but that another lot, No. 434, on Filbert street, was our original selection. This latter strongly recommended itself to us by its central position in the district; its natural accessibility; its protection from the ocean winds; its sunny and pleasant location, and its commanding view of the bay and a great part of the city.

This lot, with No. 418 on Union street, we had selected for the Fourth and Fifth districts, and hoped to make an arrangement by which we should receive them in exchange for the school lot No. 695; but finding that an exchange could not legally be effected, and not having sufficient funds to justify an independent purchase, then, rather than leave lot 695 lying vacant, in danger of being encumbered by squatters, we finally determined to build upon it.

Lot No. 418, was selected on account of its central location for the Fourth district, which naturally includes all of that part of the city, from Clark's Point around the base of the hill to the North Beach. A fifty vara lot suitable for the school could not be obtained near or upon the South

base of Telegraph Hill or Clark's Point; and if found, the price demanded would have compelled us to seek elsewhere.

Some may object to the elevation of this site. This we do not regard as a valid objection; elevated and commanding sites should always be selected for schools. They should never—if possible to avoid it—be placed in the heavy air of hollows and low places. Ventilation—pure air—should always be sought. It is as essential to the *mental* as to the *physical* health of the pupil. Much of that sluggishness and drowsiness found in many school-rooms,—bad lessons, want of interest, idleness, &c., might often be obviated by having a full supply of pure air, to keep the blood circulating with its full supply of oxygen, and the mind and feelings active and buoyant.

The labor of climbing the height is not an objection. This will secure a given amount of healthy exercise, which many persons are not generally disposed to take. It will have a decided tendency to prevent diseases of the chest and spine, and not only this, but it will strengthen the lungs, expand the chest, vitalize the blood, and develope and invigorate the whole system.

During the rainy season this School may be somewhat difficult of approach on account of the clayey quality of the earth in the vicinity. We would, therefore, recommend that the street be graded and planked before the setting in of the rainy season.

SCHOOLS NOS. 1 AND 3.

We regret that it has not been in our power to provide for the First and Third districts,—Rincon Point and Washington street, as for the Schools above described.

For a temporary arrangement, No. 3 has, since it was moved to its present location, (Baptist Church), been better provided for than any other school, having the use of two buildings; the Grammar department occcupying the rear part of the basement of the new brick church, and the

Primary, with class-rooms for both departments, the old frame building, formerly used as a church by the Baptist society. It would indeed be a fortunate circumstance, if such building or buildings were fully suitable in any single respect. There is much even in the shape, style, and general aspect of a building, aside from the *essentials* of a good school-house, that gives a favorable or unfavorable influence, or bias to the mind. The grammar room of this School is, besides being too low, rather dark and imperfectly ventilated, by no means what a room should be for tasteful and pleasing influences. Aside from all this, the buildings are much too limited; not more than one-half of the children in the district can be accommodated in the School at the present time.

School No. 1 has *suffered.* It has remained in the same old cramped building, in which it was first organized, (January, 8th, 1852,) up to the present.

At the commencement of our official duties, it was our wish and determination to relieve this School as soon as possible. But finding School No. 5 more needy in all respects, and No. 4 more so in a moral point of view, we gave our attention to those Schools, to the apparent neglect of No. 1 — apparent, because we have not been able to provide at all for this School.

Out of the issue of seven per cent. School Bonds, $100,000 sold to Wells, Fargo & Co., only $60,000 was taken at eighty-eight cents on the dollar; thus realizing in cash, out of the entire supposed sale, but $52,800!

Believing it to be our duty to provide the best buildings possible, in plan, size, arrangement, elegance, &c., to answer the wants of the future as well as the present for any Schools, we have expended nearly all of the above amount, upon the buildings and grounds for Schools Nos. 4 and 5. But good arrangements have recently been made for No. 1. Captain J. Francis Hutton is now erecting upon Hampton Place, between Second and Third streets, and near Folsom

street, a handsome, substantial and well planned frame building, sixty by thirty feet surface, by two stories high, twelve feet clear in each, which will have three study rooms with class rooms, &c., arranged on the same general plan as the new brick buildings; windows set high for good and natural light; five outer doors below and two above with stairways; walls hard finished; floors yellow pine, tongued and grooved; furniture, as for the other buildings; and which, when completed, will accommodate nearly three hundred pupils. This building, with ground measuring seventy-five by one hundred and twenty-five feet, together with necessary appurtenances, we have leased for two years at the monthly rent of two hundred dollars, payable monthly in advance.

NEW BUILDINGS RECOMMENDED FOR OTHER SCHOOLS.

We would recommend, that, as soon as the requisite funds can be obtained, permanent buildings be erected — one for the third district; one for a *new* district in the vicinity of Market and Fourth or Fifth streets, — and another for the seventh district, near the Mission. This provision can not long be delayed without loss; for some of those places are already populous, and yet continue fast increasing in population.

HIGH SCHOOL.

In addition to an adequate number of Common School buildings, a High School should be provided for during the coming school year. The Common School system can not be complete without it. Besides a proper gradation and classification in the Common School, in order to insure a true progress, and derive real benefit from the system, there must be a higher grade, to which the grammar pupils may rise, and in which a more comprehensive, thorough and liberal knowledge may be attained than the Common School, from its peculiar and necessary organization can afford.

It is now actually for the pecuniary interest of the city,

to a certain degree, to have such an institution established; for without doubt the influx of population would be greater for having the system completed. Parents and guardians in the Atlantic States, who have children and wards attending schools and seminaries there, and making desirable progress, are not, and can not be, willing to emigrate to our shores, fearing that one of their dearest and most cherished interests — the proper education of their children and wards, — must here be neglected. Many who now are here, are obliged to send their sons and daughters to Benicia, San José, or some other places, for the want of suitable higher institutions in the city. "Academies" and "High Schools" there are certainly; but the State or the City can generally give better endowments than private individuals.

NEW ISSUE OF BONDS RECOMMENDED.

Although our citizens have been and are heavily taxed, yet we have not heard, and do not hear, any complaint raised against liberally supporting the Schools; the people are ready to acquiesce in any reasonable demand made for them. For the above mentioned purpose, the city school tax this year should, in our opinion, be *one-half* of one per cent. on the whole assessments; or, in addition to a tax sufficient for mere current expenses, it would be well to issue, in addition to those bonds now issued, but not sold, $150,000, of ten per cent. bonds, maturable, — say, in ten years; so that the people at the present time may not be burdened to pay for what those some years hence may equally enjoy, and for which they should equally bear a part in paying.

FINANCES

Dr.

To balance placed in our hands by the last Board of Education,	$ [illegible]
To entire amount drawn from the School Department Fund for the current expenses of the Schools,	[illegible]
To warrant drawn for enlarging Buck street School house No. 2,	[illegible]
To warrants drawn on the "School Building Fund," $42,000, arising from sale of seven per cent. Bonds,	[illegible]
	$[illegible]

Cr.

By amount paid for the current expenses of the Schools, out of moneys raised by city tax,	$[illegible]
By amount paid on contract for enlarging Buck street School house No. 2,	[illegible]
By amount paid on contract for School houses for the Schools Nos. 4 and 5,	[illegible]
By amount paid for grading the lots for Schools Nos. 4 and 5,	[illegible]
By amount paid on mandamus against the City Treasurer, and interest paid on moneys borrowed for part payment thereof on the new buildings,	[illegible]
	$[illegible]
Amount to balance on hand,	$[illegible]

The following bills are yet unpaid:

To W. H. Dunbar, architect, for plans and superintending new building for School No. 2 $150; also for plans and

superintending new buildings for Schools Nos. 4 and 5, (one per cent. on contract) $463. To Mr. Morrison, for cornice for School No. 4, (extra) $230. To Charles Homer, for two windows, extra pilasters on building, and fences for School No. 5, bills not yet rendered. To S. H. Allyne and T. P. Clarke, for furniture for Schools No. 1, 4 and 5.

Besides the above balance, about five thousand dollars will be required to pay the above bills in full.

Out of the above amount paid for current expenses, there has been paid for teachers' salaries, the sum of $28,649.50.

For rents, - - - - - - - - - - 6,782.66.

For repairs, furniture, fixtures, &c., - - - 5,264.62.

For sundries, - - - - - - - - - - 1,219.00.

For books for Public School Library, - - - 80.37.

Average expense for each pupil during our term, $27.14.

SCHOOL FOR COLORED CHILDREN.

A School for the colored population of our city has been established. It is located at the corner of Jackson and Virginia streets, in the basement room of the St. Cyprian Methodist Episcopal Colored Church. The patrons of the church raised the building and fitted up for the School, the lower room, which is eleven feet high and fifty by twenty-five surface, well lighted, ventilated and has its walls hard finished. This we have leased for one year, with privilege of two, at the monthly rent of fifty dollars, payable monthly in advance. Mr. J. J. Moore, (colored) is the teacher. The School commenced on the twenty-second of last May, with twenty-three pupils; it now has forty-four registered. It has thus far been conducted quite satisfactorily, and bids fair to be prosperous and successful.

TEACHERS.

Our term began with sixteen Teachers in the Schools, — six males and ten females. At the present time, there are twenty-two, — seven males and fifteen females, — all duly

examined and appointed. In our selection of Teachers, we have endeavored to be very particular to select persons of proper temperaments, talents and fitness for this peculiar and important but too much neglected profession. We hold that all who would teach well, should not only have good attainments in science, literature, art, &c., but that they should come having a positive *partiality* for their profession, and that without this, it is useless to attempt to teach. Persons of the best talent and attainments have often signally failed for the want of it. Some of our teachers have fitted themselves for their profession in some of the best Eastern Normal and other institutions, and have shown their fitness for the positions they occupy by hitherto successfully contending against, and overcoming obstacles which have obstructed their way. While under circumstances so unfavorable, it would be difficult and perhaps unjust, to discriminate, we can unhesitatingly recommend the corps of teachers, as a whole, to the favorable notice and consideration of the people.

THE PUPILS, THE SCHOOLS, &c.

By the Superintendent's Quarterly Report for the term ending October thirty-first, 1853, it was shown that thirteen hundred and ninety-nine pupils, — seven hundred and thirty-two males, and six hundred and sixty-seven females attended the Schools. By the Report for the quarter ending July thirty-first, 1854, it will be seen that the attendance was seventeen hundred and forty-five, — nine hundred and twenty males, and eight hundred and twenty-five females, being an increase of three hundred and forty-six within three quarters. This increase is not as great as it should be. It is not in proportion to the number in the city at present, as compared with that of last October, (twenty-seven hundred and thirty;) but a greater number could not have been and can not be accommodated. The comparatively good temporary buildings furnished the Schools Nos.

2, 3 and 4, last November, gave but little difference in the dimensions of the rooms occupied, over those previously used. School No. 2, now occupying its new building, tends somewhat to enlarge the number in attendance.

Without taking into account the Schools of the second and seventh Ward, there is no doubt that with suitable buildings for all the districts, there would be at present, an attendance of twenty-five hundred in the Public Schools. It is for the want of suitable buildings and conveniences that many have been obliged to establish private schools, — to send their children out of the city to school, or to let them run where they pleased through the city, — forming habits, destructive alike to present growth and progress, and to future prosperity.

For this reason, also, as much as any other, the pupils in attendance in the Schools have not been regular, particularly they were not in the early part of our term. All then belonging to the Schools could not have been seated at once, if all had happened to be at any time together; and rather than let children run the streets, it was, and has been deemed proper to admit them into the Schools, though there were no fit accommodations for them.

The average number of pupils to each teacher on the first of last November, was eighty-seven! It is now seventy-nine! In the best provided and best arranged Schools in the East, forty is considered the best average number; in no case, in such Schools, does the maximum exceed fifty. In certain departments of well graded Schools, however, — where all the pupils are as nearly equal as possible in age, mental power and attainments, a greater average number may some times be allowed to one teacher, and with excellent success; but it is the *exception,* not the general rule.

TEXT BOOKS.

With other draw-backs, there was at the beginning of our term, a miscellany of text-books used in our Schools. This

gave rise to much merited complaint. Besides being a positive evil, as a hindrance to the pupil, and the general progress of the School, it was to the parent not only an annoyance, but a source of great expense, — particularly if the family moved from one district to another. Up to this time the books had been furnished the Schools by the Superintendent (Mr. Nevins) at private sale. The city had not, and yet has not furnished books to the pupils. We adopted a uniform series of text-books, (see Ninth Quarterly report, of Supt.,) since which we have heard no complaint, — we believe it has given general satisfaction. It would be well if the next Council would appropriate a certain sum, during the coming year, for a "School Book Fund," — particularly for indigent children.

APPARATUS.

Not being able to perfectly grade and systematize the Schools, owing to the before-mentioned causes, we have not obtained all the apparatus necessary for the illustration of subjects studied. A part has been provided: — out-line maps for Geography; globes, for some of the largest Schools, and some complete sets of Cutter's Anatomical charts. Black-boards have also been provided for all the Schools. In the new buildings this means of illustration has been abundantly provided. We have not only had regard to proper division of labor, but we have also had a view to the *labor itself*, — the *teaching*, and the best methods of conducting and performing it. Complete apparatus for illustrating the elementary principles of Chemistry, as well as Natural Philosophy, Physiology, Geography, Astronomy, Arithmetic, and the higher Mathematics, should be furnished the Schools, as soon as they occupy their new buildings.

THE TEACHING.

It would be superfluous to say that the teaching has necessarily been somewhat defective, particularly in some

departments, and some Schools which have been most crowded and mixed; that in some of the infant departments in particular this has been the case. The teachers have, in performing their multifarious duties, been too much confined to "the book"; they have not been able to go sufficiently beyond its limits, to lecture their classes, and to illustrate lessons by means of the black-board.

A greater interest is always taken in what is spoken as the teacher's own, besides its being generally more properly adapted to the wants of the child, than what is given in the book; and the characters of our language,—the letters of the alphabet, in their various forms, styles, combinations, and powers,—and figures, maps, drawings, &c., are always more readily understood, imitated and learned, by being prepared on the board, or otherwise, by the ingenious and skillful teacher, and thus presented to the mind through the eye, than from the most elaborate stereotyped plates.

Thus too, in the higher departments, in nearly the same degree, the black-board, with the other school apparatus, is always found to be potent. The written and the oral methods should be combined; they should never be taught independent of each other. For if the first be made particularly important, the mind will become too much habituated to the limits of mere forms and representations, without being able to go understandingly beyond them; and in the second, without presenting some tangible or visible illustration, the young mind will often be at a loss to comprehend, and must necessarily be superficial.

One fault in teaching has been, and yet is too common; teachers do not generally *study the lessons given out to their pupils!* This is necessary; *not because of any deficiency in knowledge on the part of the teacher*, but, by being thoroughly acquainted with any particular author's method of presenting principles and ideas, he may the more readily anticipate difficulties on the part of the pupil, and be better able to explain, to simplify, or to enlarge upon a particular lesson.

LIBRARY.

A nucleus of a library has within the last two quarters been formed for the teachers and pupils of the Schools. It now contains five hundred volumes of choice and well selected works, (see tenth and eleventh Quarterly Reports.) The pupils of the Schools, at present, do not have access to it, because of their generally irregular attendance and the want of permanence of the population. The teachers and honorary members of the "Teachers' Association" are only at present admitted to enjoy its benefits.

TEACHERS' ASSOCIATION.

The Teachers' Association, reorganized last November, has been, and no doubt will continue to be productive of much good, its object being the improvement of teachers in their profession. The antagonism and attrition of mind against mind in discussion; the positions assumed, and the ideas advanced in "composition" and essays; the readings, recitations, declamations, and the general interchange of thought and opinion, must always tend to subvert prejudices and biases, — to liberalize the mind, — and for the *teacher*, — be a means of arriving at the most rational and natural methods of imparting instruction, and governing and conducting a School.

REGULATIONS.

As the Schools have been hitherto, without fit buildings, mixed and crowded; impeded by irregular attendance of pupils, and a migratory population — no House of Refuge for vagrants and young offenders, — young vagabonds daily prowling about annoying the Schools, — no regular aid from the police department, we could not with propriety adopt and enforce any stringent and necessary rules and regulations for the Schools; for they could not have been observed or enforced. The Superintendent and Teachers

have conducted the Schools according to generally adopted custom, and the exigencies of particular cases. A code of *strict, written* rules would have been impracticable.

There must first be suitable buildings for all the Schools, before children can consistently be required to attend School regularly, — before the Schools can be graded and properly classified, — before any true system can be carried into effect, and before true progress can be made.

With proper endowment for all the Schools, both Common and High, under one organization; with the permanence of the population; the speedy establishment of a House of Refuge; the better condition of the streets; necessary regular aid from the police department, and the active sympathy and coöperation of the people, in behalf of this great interest, the Schools in our city will very soon compare favorably with the first in the Union.

We would, on behalf of the Schools, return our thanks to the Common Council for their prompt and generous action in making appropriations and affording necessary pecuniary relief whenever called upon, for maintaining this indispensable department of our civil and social economy; and trusting that your successors in office may be equally liberal, we conclude this Report, referring your Honorable body for further details to the Quarterly Reports of the Superintendent, herewith transmitted.

Respectfully submitted,

(Mayor) C. K. GARRISON, *President*,
(Ald.) C. O. WEST,
(Asst. Ald.) W. H. TALMADGE,
JULIUS K. ROSE,
HENRY J. WELLS.

W. H. O'GRADY, *Sec'y and Supt. Public Schools.*

LETTER

FROM THE

HON. T. BUTLER KING

TO THE

HON. WM. C. DAWSON.

New York:
HOLMAN & GRAY, PRINTERS, COR. CENTRE AND WHITE STS.
1855.

TO THE HON. WM. C. DAWSON.

My Dear Sir:

Permit me to give you some account of the difficulties, labor, risks, and responsibilities attending the performance of the various duties which devolved on me during my stay in San Francisco.

I was appointed to the Collectorship of that port in October, 1850; and after performing sundry official acts, as required by the Secretary of the Treasury, I proceeded to San Francisco, and took charge of the Customs there on the 14th of Janury, 1851. Previous to that time, the Revenue Laws, as a system, had not been enforced in California. There had been simply a Collector, with as many inspectors appointed by him as were required to take charge of the ships in the harbor, with foreign goods on board; and as many clerks in his own office as he might require. There had been no naval officer, or surveyor, or appraisers appointed under the law. It therefore became my duty to organize all these departments of the Customs; and also to establish and enforce the ware-housing system, for bonding merchandise regularly under the law.

Some of these officers had not received their commissions, nor had I any authority to pay their salaries, or to employ clerks to conduct the business of their offices. In order, therefore, to set the machinery of the Customs in motion, it became necessary for me not only to require these officers to go immediately into offices, and pay their salaries, but to authorize the employment and payment of a large number of clerks and assistants. It became necessary for me to rent one of the largest warehouses in the city, at some twenty-five hundred dollars per month, for the use of the appraisers, their assistants, clerks, and laborers. I fitted up, on my own responsibility, the offices of the naval officer, the surveyor, the appraisers, and the storekeeper, at a large expense.

All these expenditures, it is true, were subsequently sanctioned by the Treasury Department; but my anxiety and embarrassment occasioned by the want of the necessary authority at the commencement, may be better imagined than described. The opposition of the importers to the landing and appraisement of foreign merchandise was so great that in many instances it had to be accomplished almost by force. When it is considered that these goods were distributed in more than one hundred and sixty vessels in the harbor, some of them in the stream, a long distance from the shore, and the merchandise amounting to many thousand tons, it will readily be seen that the landing, appraisement, and storage of so large a quantity of goods, were no ordinary task. The captains of the vessels, in many instances, not only refused to open their hatches, and discharge the merchandise, but bade defiance to the officers of the revenue.

A few days after I took charge of the Custom House, with a view to ascertain in what manner the inspectors on board the ships performed their duty, I visited every ship in the harbor having foreign merchandise on board, and found that forty-seven inspectors out of a hundred and sixty odd, had left their vessels, and were amusing themselves on shore. Of course, they were immediately discharged. I mention this to show with what facility smuggling might have been carried on under the system as I found it; and, undoubtedly, it must have been practiced to an alarming extent. I was informed by some of the most respectable merchants of San Francisco, that inspectors had frequently come to them and offered to aid in smuggling for a suitable consideration. It was found in the Custom House itself to be quite a common practice among the clerks to receive fees for the performance of their duties, or for favoritism. All those who were detected were instantly discharged. As there were no wharves at San Francisco at that time where sea-going vessels could discharge cargo, and all the merchandise had to be brought on shore in lighters, the process of warehousing was rendered more expensive, tedious, and difficult. But after months of

great labor and annoyance the task was finally accomplished; and, at about the expiration of the first twelve months, wharves were constructed so as to enable vessels to discharge in the ordinary way.

Until a short time previous to the period of my taking office, there had been no warehouses in San Francisco suitable to be occupied as bonded warehouses; and, therefore, foreign merchandise was permitted, from the necessity of the case, to remain on board the ships in which imported; consequently no regular examinations or appraisements could be made in pursuance of law. The duties, therefore, were assessed, or ascertained, on the invoices as presented by the merchants. This led to a most extensive system of fraudulent invoices; because without examination and appraisement it is not possible to detect frauds upon the Customs through under-valuations or false invoices. My instructions from the Secretary of the Treasury were imperative, that these practices should be put a stop to—that the merchandise should be landed, the packages required by law regularly examined and appraised, and all bonded merchandise placed in warehouses. These proceedings, which were so totally at variance with what had theretofore been the practice, created the greatest possible excitement and opposition among the importers of foreign merchandise, most of whom were foreigners, and were strongly impressed with the idea that the revenue laws of the United States were not applicable to, and could not be, and ought not to be enforced in California. Their opposition was loud and unanimous, and united in by most of our own citizens engaged in the same business. These remonstrances were sent to the President of the United States; and the opposition to the enforcement of the laws became so general in San Francisco, that it aroused, as regarded myself, the most violent personal hostility. My public acts and motives were misrepresented, and, in fact, I found myself in the midst of a community of bitter enemies. Regardless of this opposition, however, and the personal detraction and hostility to which it led, I did not for a

moment shrink from the performance of my duties. All the departments of the Customs were regularly organized, and the laws strictly and uniformly enforced.

With a view to prevent frauds on the revenue by the introduction of foreign merchandise under false invoices, the law requires that all such invoices shall be certified by the American Consul or commercial agent at the port whence imported. These certificates are intended and supposed to certify that the regular or market prices of the articles are fairly stated in the invoice. In cases where these consular certificates have been accidently or unavoidably omitted, the law allows parties interested a certain time in which to procure certificates. The number of days allowed varies according to the distance whence the papers are to be procured; but the merchant, in order to avail himself of this provision of law, and to get possession of his merchandise, is required to give bond, with good and sufficient security, in twice the amount of the duties, that the certified invoice shall be produced within the time required by law. If this is not done, it becomes the duty of the collector to place the bond or bonds immediately in the hands of the District Attorney for collection.

The hurried and irregular mode of importing merchandise into California, in the rapid settlement of the country, after the discovery of gold; the reshipment of merchandise from the ports of South America, Mexico, the East Indies, and China, without the least regard to the provisions of law above referred to, led to the habit of considering these Consular certificates as little better than matters of form. Bonds were, however, taken for the production of these certified invoices; but, as there was no District Court in California, suits could not be brought for their collection. Consequently they came to be regarded as little better than a dead letter. The absence of a regularly organized appraisers' department, and the practice of permitting the merchandise to be stored on board the ships in which imported, rendered it impossible to detect undervaluations, or fictitious prices, as stated in

false invoices. It will readily be perceived that those who had the slightest intention of committing frauds upon the Revenue, could not have been placed in more favorable circumstances for the accomplishment of their object. The collection districts of California were organized under the act of 1850. A District Court of the United States was also established at the same time; a Judge, District Attorney and Marshal, were appointed; so that, when I took office, all the necessary power for enforcing the law, was organized; and it became my duty to place the bonds which had been accumulating up to that period, in the hands of the District Attorney, for collection. Such had been the irregularities attending the importation of foreign merchandise, that almost every importer in the city was interested, either as principal or security, in these bonds; and many of them to large amounts. The absence of a Court to enforce payment of them; the time which had elapsed after their date, and the circumstances under which they were given, led parties to believe, or to allege, that they were considered as mere matters of form, and given in nominal compliance with the law. Consequently, when suits were brought by the District Attorney, they created the greatest possible excitement. Public meetings were held, and I was denounced, in no measured terms, for doing simply what the law and my oath of office required. I had no authority to grant relief, or stay proceedings. My whole duty in the matter was performed when the bonds were placed in the hands of the District Attorney. All I could do was to refer the parties to the authorities at Washington. The laws for the collection of the Revenue were denounced as harsh, oppressive, and not suited to California; and the most unjust representations were made, both with respect to my acts and motives. It is quite absurd to suppose that the Revenue Laws were not, and are not, as applicable and suitable to California, as to any other portion of the Union. The real ground of dislike to them, it will readily be seen, may be found in the facilities which circumstances had afforded for their violation; and the discon-

tent which prevailed was the natural consequence of their regular and uniform enforcement.

Soon after I entered on the performance of my duties, I found many of the employees in the Customs so remiss in the performance of theirs—and in many cases absolutely violating the law—that it became necessary to fill their places with those whom it was hoped and believed would be more faithful. In making appointments, however, in a place like San Francisco, where most persons were comparatively strangers to each other, and little could be known of the antecedents of most applicants for office, it was frequently the case that the new appointments proved to be no better than those whose places they had been called to fill; consequently new removals and new appointments were frequently made, until the service had been sifted and re-sifted, in such a manner as to secure a corps of officers perfectly faithful to the trust reposed in them. These changes necessarily increased the number of my enemies, by all those who had been dismissed from office. They filled the newspapers with abuse, ridicule, misrepresentations, and slanders of all kinds. These publications found their way into the newspapers in the Atlantic States, and necessarily produced the most injurious and erroneous impressions respecting my official conduct. Amidst this torrent of abuse and detraction, I pursued the even tenor of my way, without regard to consequences. The laws were regularly and impartially enforced. Attempts at frauds upon the Revenue, by false invoices and smuggling, were finally abandoned, and the collection of the Revenue at San Francisco became as perfectly certain, quiet, and equitable, as in any port in the Atlantic States. It was finally discovered, by those even who had been most opposed to the enforcement of the law, that a system which acted uniformly and equally upon all, was much better than any advantages which might result from irregularities, no matter how successfully practiced; so that, towards the close of my administration, I had the satisfaction of receiving the commendation of those even

who had been most opposed to me; and finally, on leaving office, the whole mercantile community united in paying me the compliment of a public entertainment, in acknowledgement of the services I had performed.

The building which had been rented by my predecessor for a Custom House, was, including the basement, four stories high. The basement and the first floor were occupied with bonded and unclaimed merchandise, a large portion of which was hardware of various metals and descriptions; the remainder being very combustible—boxes, crates, etc., etc. The fourth, or upper story, also contained a large quantity of combustible materials. The third floor was occupied by the Collector and his clerks, as the Custom House. On this floor there were three rooms—one large room for the clerks, and two small ones, occupied by the Collector and his cashier, where the public money was kept in boxes, bags, and one iron safe which had been furnished by the Government. Although the building had been regarded and rented as fireproof, it could readily be perceived that, where so many persons were employed, and lights kept at night, any accident which might have set fire to the combustible materials in the building would have caused a very great loss of the public money. I therefore felt the greatest anxiety to put it in a place of greater security. I had no authority for the expenditure of money for the construction of a vault, and the quantity was entirely too large to be secured in the safe provided by the Government. I therefore lost no time in causing a vault to be constructed in the basement story of the building, and making it as secure as possible, as a place of deposit for the public money. I deducted the cost of this vault—between six and seven thousand dollars—from the rent of the building. It cost the Government nothing. As soon as it was completed I placed the money in it; and this was done almost daily, as it was received in payment of Customs' duties, to secure it from accident by fire. The safe which had been provided by the Government was kept in the Cashier's room, as a place of deposit for the current

receipts from day to day. The vault being in the basement, surrounded by combustible materials, I did not permit it to be approached at night; consequently, as it was frequently late at night before our accounts were finally made up, it often happened that the receipts of one day were not placed in the vault until the next. In this situation—there being about fifty thousand dollars in the safe—we were overtaken by the fire of the 3d and 4th of May, 1851, which destroyed most of the city of San Francisco, and reduced the Custom House to ashes. The large mass of combustible merchandise before mentioned, made a fire of such intense heat, that the safe was destroyed, and the money in it melted and scattered in fragments among the immense mass of melted and congealed hardware, which fell together into the basement of the building. The public money then in the vault, which I had constructed, amounted to near a million and a quarter of dollars. It can readily be imagined that a very large proportion of it must have been utterly lost, had I permitted it to remain where it was handed over to me. After the most diligent and laborious examination of the debris of the mass of material into which the melted money had been precipitated from the safe in the Cashier's room, it was all recovered except about $14,300, which remained so mixed with the infused mass of melted nails, copper, kegs of lead, and various articles of brass and iron, that it was utterly impossible to find or to separate it.

At this time, San Francisco was filled with probably the most desperate band of thieves and robbers that ever infested any civilized community. The great bulk of the public money, amounting to about a million and a quarter of dollars, lay in the vault I had prepared for it, in the midst of the ruins of a burned city; and it presented a most tempting object to the thieves and villains by whom it was surrounded. It fortunately so happened that I had secret information, upon which I believed I could rely, that a plan had been formed by these miscreants, to kill the guard, and rob the vault. Up to that time, I had only employed the officers of

the Customs that could be spared from immediate duty as a guard to protect the vault; but feeling that the danger of robbery was imminent, I addressed a note to Capt. Gardiner, of the sloop-of-war Vandalia, then lying in the harbor, requesting him to send me a guard of twenty marines, under the charge of an officer. He immediately despatched Lieutenant Reed, and placed him under my orders. This officer, with his guard of marines, in all probability prevented the murder and robbery which I had every reason to believe, and which it afterwards appeared in the examinations of the Vigilance Committee, had been planned, as I had been informed.

I immediately rented another building for a Custom House, and constructed a vault in it, which cost over ten thousand dollars; and as I had no authority from the Secretary of the Treasury to make this expenditure, I stipulated that it should be deducted from the rent of the building, upon condition that it should be occupied as a Custom House until the Government building should be finished. The construction of this vault, and the preparation of the new Custom House, occupied some four weeks, during which time I had not only to attend to my duties as Collector, which were arduous, but to the preparation of the new Custom House, and the protection of the money in the vault of the old one. When, finally, the new vault was finished, and arrangements were made to remove the public money into it, it appeared evident, from the mob which collected in the street about the old vault, that a robbery was intended. This, under the circumstances, doubtless appeared feasible enough. The money had to be removed in open wagons, through circuitous streets, in the midst of a city in ruins, filled with people, drays, carts, and conveyances of all sorts, employed in its reconstruction. There were about six wagon-loads of the money. I employed two wagons, which went three times each. I sent for Capt. Hunter, of the Revenue service, and directed him to furnish me with a guard of twelve men and two officers. With this guard, I succeeded in removing the treasure with-

out interruption, in the midst of a mob of some five hundred of the most desperate thieves and murderers, who afterwards confessed—some of them—that the plan to rob the wagons had been actually formed, as I had suspected. This plan was to have been executed by the murder of myself, my son, and others guarding the public treasure, and plundering the vault and the wagons.

On the 21st and 22d of June, 1851, there was another great fire in San Francisco, in the western portion of the city, where the new Custom House was situated, which had not been destroyed by the fire of May. With the assistance of the clerks, I placed all the books and papers in the new vault, and removed the furniture of the Custom House into the public square. The fire came upon us like a torrent, but, after a day of great labor and exposure, we finally succeeded in arresting the flames and saving the Custom House, which was several times on fire during the day. If the house had been destroyed, the books, papers, money, and furniture would have been saved. After the removal of the money to the vault of the new Custom House, several plans were laid by the thieves of the city, for the purpose of robbing the vault. These plans were disclosed in the course of the examinations before the Vigilance Committee. One was to rent a building upon the opposite side of the street, and by digging a subterranean passage across it, to undermine the vault, and accomplish the robbery. Another, it is said, was to place a large quantity of powder under the vault, and blow it up, thus destroying the house itself, and all those in it. Another plan, as I was told, was for the thieves to enter the Custom House at night, kill myself, my son, the naval officer, the deputy surveyor, and the two watchmen employed to keep guard, as we all, except the watchmen, slept on cot-beds in the various offices, to protect the public money and property.

Amidst this confusion and personal peril, the Secretary of the Treasury appointed me Assistant Treasurer of the United States at San Francisco, and required me to give a bond in

the sum of one hundred thousand dollars, with three securities, for the faithful performance of my duties, and the safe keeping of the public money. This office I did not desire, and begged to be excused from taking it; but it was imposed upon me; and, under this state of things, I entered upon the performance of its duties. I opened my accounts with the Treasurer of the United States, became responsible for all the public money, as Assistant Treasurer, received it all from myself, as Collector, made all disbursements, as required by Treasury Drafts, and, finally, after my resignation of the Collectorship, and my successor was appointed, I was kept a whole month in San Francisco, as Assistant Treasurer, in charge of the public money, receiving and paying it out, with my son with me as Cashier, before my successor, as Assistant Treasurer, was appointed. I then paid over to him all the public money I had received, except that which had been paid out on Treasury Drafts—balanced and closed my accounts with the Treasurer of the United States.

During the time I acted as Assistant Treasurer of the United States at San Francisco, that city was in the most extraordinary and alarming condition—two great conflagrations occurred which nearly destroyed it.

There was probably not a banker in San Francisco who would have taken charge of the public money, under all the circumstances in which it came into my hands, provided for, and been responsible for its safe keeping, short of a commission of, at least, two and a half per cent.

When I was appointed Collector, I was, at the same time, appointed, with Mr. Allen A. Hall, Joint Commissioner of Public Buildings—was required by my instructions to assist in all duties as Commissioner, pertaining to the appointment —to examine and sign all vouchers for the expenditure of money—was made Disbursing Agent of the Commission; and, consequently, rendered responsible for every dollar that was expended; while Mr. Hall, my co-commissioner, had no such responsibility: and, therefore, whether money was

properly or improperly paid out, no return of it from him could be required. But with myself the case was different. I was rendered responsible to the Treasury Department, and any unauthorized expenditure would necessarily fall upon me. This has been illustrated in the fact that a large sum actually expended, and authorized by our instructions, has been checked against me, by the present Secretary of the Treasury, although allowed by his predecessor, which, if the Secretary's opinion shall be sustained by the Court, I shall be compelled to pay. I was not only rendered thus responsible, but I participated equally in all the labors of the Commission with Mr. Hall, while he remained at San Francisco. We were instructed by the Secretary of the Treasury to remove the squatters from the government lots which had been selected as sites for the Custom House and Hospital, but, during Mr. Hall's stay in San Francisco, this was not accomplished.

In December, 1851, or January, 1852, Mr. Hall left San Francisco, and resigned his post as Commissioner of Public Buildings. I was then appointed sole Commissioner; thus holding the two appointments, as Disbursing Agent of the Commission, and Commissioner, with all the responsibilities of both. I immediately adopted the necessary measures to remove the squatters from the lots reserved for the public buildings, and finally succeeded in doing so; thus recovering for the Government, without a law-suit, property worth at least half a million of dollars; and located the public buildings upon them. This caused a great deal of labor and annoyance. There were parties in the city who desired to prevent the location of the public buildings upon the lots belonging to the United States, for the purpose of securing their location in a portion of the city in which they were themselves interested. Much excitement and ill-feeling were engendered upon this subject, and it became a most exciting question. This encouraged the squatters to resistance, and it was several months before they could finally be removed.

My correspondence with the Department would show the labor I performed in the course of these proceedings. It was not only arduous, but perplexing, and involved much personal risk. Mr. Hall was allowed for his services, from the time of his appointment in Washington City, until sometime after his return to that place, seventeen dollars a day, for his services as Joint Commissioner. He had performed but comparatively a small share of the labor, and incurred no risk or responsibility whatever. I was not only the Joint Commissioner, and required to certify to all the vouchers for expenditures as before stated; but I was also Disbursing Agent, thereby rendered doubly responsible for the payment of the money, as well as compelled to share all the labors of the Commission. I therefore considered myself justly entitled to a compensation equal to that which had been given to Mr. Hall.

Previous to my taking office as Collector of San Francisco, many seizures had been made, by the Collector of the Port, of vessels and merchandise, for supposed violations of the Revenue Laws. This property was sold by the Collector without authority of law; consequently large claims were preferred against the Government for these seizures and confiscations. Authority was given by Congress, to the Secretary of the Treasury, to adjust and settle these claims, and to appoint a commissioner for the purpose of collecting testimony and information respecting their extent and validity. I was appointed by the Secretary of the Treasury, under the law, to perform this duty. This labor was performed by me mostly at night, and entirely out of office hours as Collector. The papers were very voluminous which I had to examine, and the testimony procured was of a most important character. I was employed in this business during my whole stay at San Francisco, embracing a period of one year and eleven months. I was frequently occupied most of the night, in examining these claims and the testimony. I forwarded to the Secretary of the Treasury, certificates of the most

respectable lawyers, and some of the foreign consuls, stating that they would not have performed the labor which devolved upon me, for a less sum than ten thousand dollars. If the Government had sent a Commissioner under a separate appointment, his expenses alone, to and from San Francisco, would have been one thousand dollars; and his salary and other expenses would probably have cost the Government twice as much as I charged in my account; because they must have employed a legal gentlemen, as many of the cases involved elaborate arguments. A fee of ten thousand dollars was actually paid, in some individual cases, to the lawyers concerned in advocating them.

From the above statement of facts, it will be seen that the Secretary of the Treasury required me to take the appointment of Assistant Treasurer of the United States, and to give bonds in the sum of one hundred thousand dollars, with good security, for the safe keeping and faithful disbursement of the public money. I did not seek this appointment. I begged to be relieved from it; but was required to hold it. I did hold it, as will have been seen, through scenes of great personal peril; and in imminent risk of losing the money, both by fire and robbery. Nothing but the most sleepless vigilance enabled me to preserve it. For my services risks, and responsibilities, aside from my duties as Collector, for all my services, for investigating claims for, and collecting testimony respecting seizures of foreign merchandise and vessels—for my services, risks, and responsibilities, as Assistant Treasurer of the United States—for my services as Joint Commissioner, and Sole Commissioner, of Public Buildings; and for my responsibility as Disbursing Agent of the Commissioners—the present Secretary of the Treasury says I shall not receive one dollar.

The discovery of gold in California led to an immense influx of commerce into the port of San Francisco. Vessels from all parts of the world were collected there: and as the seamen were mostly shipped, simply for the voyage out, with a view of getting a passage to the gold regions, and as

there were no return freights from that country, these vessels were mostly abandoned, or laid up in ordinary, so that at one time there were more than seven hundred sea-going vessels in the port of San Francisco, most of which were either abandoned, or used as store-ships. Soon after I came into office, these vessels began to be regarded as of some value. Claims were sent from all parts of the world, against them, and most of them were sold at marshal's or sheriff's sale, or disposed of by private contract.

A great many legal questions, involving titles to this property, arose during my term of office. All these questions I decided without reference to a Court, and not in a single instance has one of my decisions been reversed. I made many seizures for violations of the Revenue Laws, and in no case did I fail to get a verdict of the Court in favor of the Government. Neither during the time I held office, nor since I left it, has a single suit been brought for an illegal seizure, for violations of the Revenue Laws, or for an erroneous decision respecting rights of property; while, as I am informed, both my predecessor and successors have been sued in numerous instances, thus involving the Government in heavy expenditures, and large liabilities; though during my administration, all the principles were settled respecting the enforcement of the Revenue Laws, and the adjustment of claims upon vessels disposed of, both at public and private sale.

In the months of January and February, 1851, Indian hostilities broke out in various parts of California, along the Sierra Nevada, and in the northern portion of the State, near the coast, and on the Trinity and Klamath rivers. Many of the white inhabitants were killed, miners driven from their diggings, and much consternation prevailed throughout the State. Committees were sent from various places to San Francisco, to solicit aid of Gen. Smith, then commanding that Division of the Army; and also from the Governor of the State. The Indian Commissioners had no money to move troops. The State Treasury was empty, and the Gov-

ernor could give no organized assistance. It was feared, and believed, that unless these hostilities were suppressed immediately the war would become general, not only in California, but extend into Oregon. In this state of affairs, Gen. Smith, the Indian Commissioners, and the State authorities all applied to me, to advance to the Quarter-Masters of the Department of the Army, fifty thousand dollars, to enable the General to move, with an escort sufficiently strong to protect the Commissioners, to the scene of disturbances, that they might use their efforts in making peace. After much anxious reflection upon the subject, I finally considered it my duty to the Government and to the country, to advance the money, though it was done at my own personal risk.

The difficulties with the Indians ultimately proved more serious than was at first supposed, and Gen. Smith found it necessary to move a much larger force than had been considered necessary; he therefore applied to me for another advance of a hundred thousand dollars. I required from him and his Quarter-Master, statements to show the necessity of this advance, and that he should give me Drafts on the War Department, covering the whole amount. This was done, and I advanced the money. These sums, thus advanced, enabled the General to move promptly to the interior, with a force sufficiently strong to overawe the Indians, and enable the Commissioners, in a few weeks, to restore peace and security to the frontier; and in all probability to prevent a protracted and most expensive war.

When these facts were represented at Washington, to the War Department, Gen. Jessup—Quarter-Master-General—caused the amount I had advanced, to be placed to my credit at the Treasury, and wrote me a letter of thanks for what he was pleased to consider a very important service.

When I took office, the District Courts of California had been established by law, and the Judges and Marshals commissioned; but no funds had been supplied them for the purpose of organizing the Courts; and, as they informed me, it was impossible for them to enter upon the performance of their

duties, without the preliminary expenditure of about fifteen thousand dollars. The people were clamorous for the organization of the Courts, and they were absolutely necessary to the proper execution of the Revenue Laws, as well as other laws coming within their jurisdiction. After much solicitation, and considering the necessity of the case, I advanced some fifteen thousand dollars for the organization of these Courts.

Not long after this occurred, the Surveyor-General for the State of California arrived at San Francisco. He had a large staff of officers, and had not been supplied with a dollar, even for their current expenses, and it was utterly impossible for them to commence the performance of their duties, without the necessary means. This officer applied to me, and stated that it would be at least three months before he could receive instructions from Washington; and that he and his assistants, during that period, must remain inactive, unless I would advance him ten thousand dollars. I finally advanced the money, taking his Draft upon the Department in the interior, for it.

Some time previous to my arrival, an officer had been appointed to take the Census of California. but had been unable to move in the performance of his duty for the want of means. He applied to me for an advance of five thousand dollars, to enable him to do so. His application was sustained by the principal men of the State, who were anxious to have the Census taken. Considering the distance from Washington, and the time required to communicate with the authorities there, I advanced the sum required.

All these sums were, of course, advanced on my personal responsibility, and for the purpose of enabling those departments of the service in California, to which they were made, to move off promptly in the performance of their duties. These amounts having been advanced without authority of law, gave the opportunity to my enemies to assail me as a public defaulter, and to affirm that my accounts to the Treasury were deficient of the amounts thus advanced. These

sums, however, were all placed to my credit by the various Departments to which they had been advanced, at the Treasury of the United States. These transactions gave to my enemies—who had come from California to Washington for the purpose of injuring me—the opportunity of circulating their slanders to my prejudice, without my knowledge; nor did I hear of them until months afterwards; and much to my astonishment, when I did hear of them, I found the Administration had taken no steps to refute or contradict them; although the evidence was in every Department that all my acts had been ratified.

T. BUTLER KING.

St. Simon's Island, 2d December, 1854.

REPORT

ON

CITY AND COUNTY FINANCES:

MADE PURSUANT TO

An Order of the Board of Supervisors,

BY

EDWARD BYRNE.

SAN FRANCISCO:
STEAM PRESSES OF MONSON, VALENTINE & CO.
Nos. 127 and 129 Sansome Street.
1856.

CORRESPONDENCE.

GEO. H. WHELAN, ESQ.,

President of the Board of Supervisors of the City and County of San Francisco:

SIR—I have the honor to submit herewith, a complete and accurate Statement of the Items of Expenditure of the City and County of San Francisco for the Three Years ending June 30, 1856, which I have carefully made out from the Public Records, as directed by you in pursuance of the Order of the Board of Supervisors, which is hereto annexed.

EDWARD BYRNE.

SAN FRANCISCO, September 1, 1856.

ORDER.

ON the 7th day of August, 1856, the Justices of the Peace remaining in office, in the City and County of San Francisco, being assembled at the City Hall, and exercising the powers of a Board of Supervisors, under the provisions of the Act entitled "An Act to Repeal the several Charters of the City of San Francisco, to Establish the Boundaries of the City and County of San Francisco, and to Consolidate the Government thereof;"—considering that it is the bounden duty of public, not less than of private agents, who may be intrusted with the collection, custody, and disbursement of money, to inform their constituents, from time to time, of their receipts and expenditures; and considering that this duty is not performed, but is simply evaded by expressing gross sums under the term "Current Expenses," or any other such indefinite expression, without particularizing the items for which payments were made—

Ordered, That the President of the Board of Supervisors be requested to cause to be made out, immediately, from the books in the proper offices, and furnished to such of the city papers as desire to publish the same for the information of the public, and without expense to the Treasury, a statement of the items of expenditure of the City and County Governments for the three years ending on the 30th day of June, 1856, made out in such form as to show the sums total expended or paid out for each separate or distinct object, or appropriated to each office, as salary, compensation, expenses, or otherwise, (and to be specified for which,) during each of the said three years, separately, beginning with the last; and any officer of said city and county having the custody of said books, shall furnish any facilities in his power, and make out, on the requisition of the President, any statement that may be necessary, from the data existing in his office, for the purpose of carrying this order into effect without delay.

TABULAR STATEMENT OF EXPENDITURES OF CITY AND COUNTY.

COUNTY.

DATES.	Fees and other compensation paid out of the Treasury to Sheriff and Deps.	Fees and compensation paid out of the Treasury, to the Coroner.	Compensation to Assessor and Deputies.	Fees and other compensation paid out of the Treasury to the County Clerk.	Compensation of Auditor.	Fees and compensation paid out of the Treasury to the County Recorder.	Amounts paid out of the Treasury to the District Attorney.	Amounts paid out of the Treasury for compensation to Surveyor.	Amounts paid out of the Treasury as compensation to Treas r and Deps.	Compensation of County Judge and Judges of Court of Sessions.	Compensation of members of Board of Supervisors.	Compensation of Attaches of Board of Supervisors.	Fees paid out of Treasury to Justices of the Peace and Constables.	Salary of Physician to the County Jail.
June 30, 1853 to June 30, 1854.	8,765	10,172	21,524	13,089	12,789	11,146	8,495	.....	18,969	10,961	3,096	6,979	885	1,800
June 30, 1854 to June 30, 1855.	9,000	20,027	22,761	8,430	1,596	35,848	14,506	6,810	39,776	9,439	4,595	7,415	1,448	1,977
June 30, 1855 to June 30, 1856.	9,000	16,788	15,860	4,903	1,596	25,451	12,467	1,320	15,374	8,560	2,696	6,000	2,557	1,440
Total	26,765	46,987	60,145	26,422	15,981	72,445	35,468	8,130	74,119	28,960	10,387	20,394	4,890	5,217
Average per Annum	8,921	15,662	20,048	8,807	5,327	24,148	11,822	4,065	24,706	9,653	3,462	6,798	1,630	1,793

TABULAR STATEMENT OF EXPENDITURES (COUNTY)—CONTINUED.

DATES.	Compensation to the Commissioners of Public Schools.	Compensation of other Officers and Employees.	Amounts paid for legal advice, exclusive of District Attorney.	Paid on account of Greenwich Street Hospital Lot.	Expense of maintenance of Indigent Sick.	Paid for Post Mortem Examinations.	Paid on account of Lot for House of Refuge.	Hall of Records Building and Lot adjoining.	Paid for fitting up Hall of Records.	Building County Jail	Paid for making a County Map.	Improvement of Plaza.	Paid for Grading Brenham Place.	Expenses about the City Hall.
June 30th, 1853 to June 30th, 1854	.....	5,508	2,500	.....	.....	2,405	.....	45,000	.....	35,314	.....	.....	.....	18,098
June 30th, 1854 to June 30th, 1855	9,585	6,911	4,500	24,250	18,077	3,897	23,869	1,500	11,500	.....	10,000	3,146	600	23,568
June 30th, 1855 to June 30th, 1856	1,710	3,645	400	100	89,478	1,570	.....	.....	.....	.....	.....	.....	.....	4,177
Total	11,295	16,064	7,400	24,350	107,555	7,872	23,869	46,500	11,500	35,314	10,000	3,146	600	45,843
Average per Annum	5,647	5,354	2,466	.....	53,777	2,624	.....	.....	.....	.....	.....	.....	.....	15,281

TABULAR STATEMENT OF EXPENDITURES (COUNTY)—Continued.

DATES.	Paid for Incidental Expenses of Sheriff's Office.	Paid for Incidental Expenses of Assessor's Office.	Paid for Incidental Expenses of County Clerk's Office.	Paid for Incidental Expenses of Auditor's Office.	Paid for Incidental Expenses of Recorder's Office.	Paid for Incidental Expenses of District Courts.	Paid for Incidental Expenses of Treasurer's Office.	Paid for Incidental Expenses of Board of Supervisors.	Paid for Incidental Expenses of County Court and Court of Sessions.	Paid for Incidental Expenses of the County Jail.	Paid for Subsistence of Prisoners.	Paid for examining and conveying to Stockton Insane Persons.	Paid for Expenses of Policemen in pursuit of Fugitives from Justice.	Paid on account of County Roads.	Paid for Incidental Expenses of Grand Jury.
June 30th, 1853 to June 30th, 1854	1,008	2,544	7,864	530	9,770	408	1,000	937	816	12,069	34,281	.....	299	46,496	2,075
June 30th, 1854 to June 30th, 1855	994	2,852	12,151	1,418	10,047	5,150	2,421	2,106	1,693	12,535	36,143	1,039	385	21,275	4,318
June 30th, 1855 to June 30th, 1856	681	75	570	300	1,742	155	2,607	485	32	9,260	34,899	4,765	622	20,559	715
Total	2,683	5,471	20,585	2,248	21,559	5,713	6,028	3,528	2,541	33,864	105,323	5,804	1,306	88,330	7,108
Average per Annum	898	1,823	6,851	749	7,186	1,904	2,009	1,176	847	11,288	35,107	2,902	435	29,443	2,369

TABULAR STATEMENT OF EXPENDITURES (COUNTY)—Continued.

DATES.	Paid on account of Fees to Witnesses and Jurors.	Paid for Incidental Expenses of sundry Offices.	Paid for Expenses of Annual Elections.	Paid for Printing and Advertising.	Paid for Stationery.	Paid for Expenses on Road of Committee of Board of Supervisors.	Paid for Carriage, Buggy and Horse Hire.	Paid for Rent and fitting up Armory.	Paid Subscription to E. Gilbert's monument.	Paid Boatmen bringing dead Chinamen from Yerba Buena Island.	Paid for support of an Orphan Infant.	Paid to celebrate the 4th of July.	RECAPITULATION.
June 30th, 1853 to June 30th, 1854	2,119	1,339	14,204	3,489	8,945	1,375	170	1,800	.....	.....	.....	.....	From June 30 '53 to June 30, '54 ... 391,033
June 30th, 1854 to June 30th, 1855	1,837	1,164	11,974	4,487	8,184	4,925	3,754	.....	500	1,505	75	1,000	From June 30 '54 to June 30, '55 ... 478,963
June 30th, 1855 to June 30th, 1856	239	1,563	9,861	3,240	9,912	800	513	1,800	.....	.....	.....	.....	From June 30 '55 to June 30, '56 ... 330,487
Total	4,195	4,066	36.039	11,216	27,041	7,100	4,437	3,600	500	1,505	75	1,000	Total $1,200,483
Average per Annum	1,398	1,355	12,013	3,738	9,013	2,366	1,479	1,800	.....	.....	.....	.....	

TABULAR STATEMENT OF EXPENDITURES OF CITY AND COUNTY.

CITY.

DATES.	Pay of Mayor and Employees.	Pay of City Marshal and Employees.	Pay of City Attorney and Employees.	Pay of City Recorder and Employees.	Pay of City Treasurer and Employees.	Pay of City Controller and Employees.	Pay of Chief Engineer and Employees.	Pay of City Surveyor and Employees.	Pay of Street Commissioner and Employees.	Pay of Fire Wardens.	Pay of Bell Ringers.	Pay of Engine Keepers.	Pay of Engine Stewards.	Pay of Aldermen and Ass't Aldermen.
June 30, 1853 to June 30, 1854.	6,253	4,684	5,171	7,328	43,460	6,996	3,675	1,000	4,196	7,200	4,275	1,200	.....	.....
June 30, 1854 to June 30, 1855.	6,000	3,828	3,996	5,999	21,877	3,996	6,285	110	3,996	7,205	4,950	7,680	.....	.....
June 30, 1855 to June 30, 1856.	9,697	3,999	6,498	.....	5,199	7,198	13,448	5,998	.....	.....	5,400	.....	7,920	15,218
Total	21,950	12,511	15,665	12,327	70,536	18,190	23,448	7,108	8,192	14,405	14,625	8,880	7,920	15,218
Average per Annum	7,316	4,170	5,221	6,163	23,512	6,063	7,816	2,369	4,096	7,202	4,875	4,440	7,920	15,218

TABULAR STATEMENT OF EXPENDITURES (CITY)—Continued.

DATES.	Pay of Aldermen's Attaches.	Pay of City Assessors and Deputies.	Pay of Employees of Fund Commissioners.	Pay of Inspectors of Wharves.	Pay of City Sexton.	Pay of other Officers and Employees.	Paid for Legal Advice exclusive of City Attorney.	Paid as Commissions to City Tax Collector.	Pay of City Physician.	Pay of Judge of the Superior Court.	Pay of City Policemen.	Paid for Incidental Expenses of Mayor's Office.	Paid for Incidental Expenses of City Marshal's Office.	Paid for Rent of City Attorney's Office.	Paid for Rent of Judges' Chambers.
June 30th, 1853 to June 30th, 1854.	10,239	10,790	.....	2,400	....	7,262	22,750	13,350	1,360	7,500	87,334	716	1,916	750	....
June 30th, 1854 to June 30th, 1855.	12,966	22,250	.....	400	....	22,672	23,836	12,840	1,283	7,083	177,572	341	730	3,375	....
June 30th, 1855 to June 30th, 1856.	10,374	4,000	7,191	.....	750	15,433	326	7,325	1,200	1,256	110,193	.....	258	.....	375
Total	33,579	37,040	7,191	2,800	750	45,367	46,912	33,515	3,843	15,839	375,099	1,057	2,904	4,125	375
Average per Annum	11,193	12,346	7,191	1,400	750	15,122	15,637	11,171	1,281	5,279	125,033	528	968	2,062	375

TABULAR STATEMENT OF EXPENDITURES (CITY) CONTINUED.

DATES.	Paid for Incidental Expenses of City Treasurer's Office.	Paid for Incidental Expenses of City Collector's Office.	Paid for Rent of Estate Rooms.	Paid for Rent of Armory	Paid for Incidental Expenses of Police Commissioners' Office.	Paid Aldermen for Rent of Rooms for Meetings	Paid for Printing and Binding for Common Council	Paid for Printing City Ordinances	Paid for Incidental Expenses of Board of Assessors	Paid for Printing and Binding Assessment Rolls	Paid for Incidental Expenses of Water Dept.	Paid for Repairs of Town Hall and Furniture	Paid for Rent of City Sessions Office.
June 30th, 1853 to June 30th, 1854.	....	621	14,900	5,000	526	.....	1,100	.....	.....	1,960	....	6,860	....	11,360	.....
June 30th, 1854 to June 30th, 1855.	205	25	15,739	2,500	50	10,000	.....	15,000	75	.....	800	1,875	200	23,192	2,640
June 30th, 1855 to June 30th, 1856.	.....	.....	2,310	.....	.....	.....	.....	.....	.....	.....	.....	2,100	.....	.....	2,250
Total	205	646	32,949	7,500	576	10,000	1,100	15,000	75	4,960	800	10,835	200	37,152	4,890
Average per Annum	205	323	10,983	3,750	288	.....	.....	.....	.....	4,960	.....	3,611	....	18,726	2,445

TABULAR STATEMENT OF EXPENDITURES (CITY)—Continued.

DATES.	Paid for Incidental Expenses of Tax Collector's Office.	Paid for Rent of Station House at Mission.	Paid for the Rent of School House.	Paid for the Rent of Offices.	Paid for Incidental Expenses of Fire Department.	Paid for Incidental Expenses of Superior Court.	Paid for Hack and Horse Hire.	Paid for Improvement of Streets.	Paid for Lighting the Streets.	Paid for Incidental Expenses of City Hall.	Paid for Lots, and Building Engine Houses.	Paid for Building and Filling Cisterns.	Paid for Examining and Conveying to Stockton Insane Persons.
June 30th, 1853 to June 30th, 1854.	4,712	324	....	....	50,173	445	.....	431,947	11,692	39,534	22,725	38,809	4,708
June 30th, 1854 to June 30th, 1855.	7,785	400	60	....	69,007	143	.....	848,535	44,204	30,490	121,787	56,587	791
June 30th, 1855 to June 30th, 1856.	556	240	....	380	11,722	.....	587	4,203	56,311	4,592	61,800	6,000	.....
Total	13,053	964	60	380	130,902	588	587	1,284,685	112,207	74,616	206,312	101,396	5,499
Average per Annum	4,351	321	....	....	43,634	294	587	428,228	37,402	24,872	68,770	33,798	1,833

TABULAR STATEMENT OF EXPENDITURES (CITY)—Continued.

DATES.	Paid for Printing and Advertising.	Paid for Stationery.	Paid for Account of Engrossing Ordinances.	Paid for Official Reporting, Translating, and Printing Debates.	Pay of Members of City Council.	Paid for Reporting Debates of City Council.	Paid for Law and Legal Expenses.	Paid for Council Fees.	Balance of Appropriation for Law Charges.	Paid for Salaries of Law Officers.	Paid for Messengers and Attendants.	Paid for Inspecting the Public Works.	Paid for Surveyors' and Clerks' Salaries and Expenses.	Paid for Water Rents and Expenses of the Water Works.
June 30th, 1853 to June 30th, 1854.	30,168	3,542	7,465	2,663	13,205	2,416	20,033	.....	.....	.....	63,364	650	.....	1,000
June 30th, 1854 to June 30th, 1855.	11,944	10,616	10,946	1,239	8,888	1,502	52,683	1,264	632	2,000	41,535	36,992	5,187	6,496
June 30th, 1855 to June 30th, 1856.	10,102	3,877	275	.....	6,182	1,199	.....	937	.....	.....	.....	653	.....	.....
Total	82,214	18,035	18,686	3,902	28,275	5,117	72,716	2,201	632	2,000	104,899	38,295	5,187	7,496
Average per Annum	27,404	6,011	6,228	1,951	9,425	1,705	36,358	1,100	.....	.....	52,449	12,765	.....	3,748

TABULAR STATEMENT OF EXPENDITURES (CITY)—Continued.

DATES.	Paid Extras furnish'd School Houses.	Paid for Current Expenses of Free Schools.	Paid for Redemption of Audited Acc'ts.	Moneys Overpaid by City Treasurer.	Paid for Taxes by Mistake.	Paid for Purchase of Wharves.
June 30th, 1853 to June 30th, 1854.	.....	42,000	312	1,480	193	185,000
June 30th, 1854 to June 30th, 1855.	2,998	105,161	17,111	.....	81	.....
June 30th, 1855 to June 30th, 1856.	.....	112,648	.....	.....	.....	.....
Total	2,998	259,809	17,423	1,480	274	185,000
Average per Annum	.....	86,603	.....	.....	.....	.....

RECAPITULATION.	
From the 30th of June, 1853 to the 30th of June, 1854	$1,290,792
State Marine Hospital	150,000
Total for the Year.....	1,440,792
From the 30th of June, 1854 to the 30th of June, 1855	1,959,698
State Marine Hospital.....	207,529
Total for the Year.....	2,167,227
From the 30th of June, 1855 to the 30th of June, 1856.....	525,633

CONSOLIDATED STATEMENT

Of Expenditures of the City and County of San Francisco, from June 30, 1853 to June 30, 1856, exclusive of sums paid in liquidation of Principal and Interest of Indebtedness which had previously accrued and which consequently belong to the expenditures of former years.

DATES.	Expenses of Annual Assessments, paid as compensation to Assessors and their Deputies.	Expenditures for the Maintenance of the Indigent sick.	Subsistence of Prisoners.	Incidental Expenses of County and City Prisons.	For Improvement of Streets	Improving the Plaza.	County Roads and Bridges.	Lighting the Streets.	Contingent Expenses of Fire Department.	Repairing and Fencing of Cemeteries.	Lots and Buildings for Fire Department.
June 30th, 1853 to June 30th, 1854. ..	32,314	213,361	47,486	14,185	431,947	650	46,196	11,692	65,073	38,809	22,725
June 30th, 1854 to June 30th, 1855. ..	45,041	278,328	45,031	14,087	848,535	40,138	21,275	44,201	84,746	56,587	121,787
June 30th, 1855 to June 30th, 1856. ..	19,860	89,478	41,081	10,459	4,803	653	20,559	66,311	14,032	6,000	61,800
Grand Total—Dollars..	97,185	581,170	133,598	38,081	1,285,285	41,141	88,330	112,207	163,851	101,396	206,312
Average per Annum ...	32,395	193,723	44,592	12,903	428,428	13,813	29,448	37,402	54,617	33,798	68,770
Annual Expenses of Consol'ted Gov't ..	5,000	33,600	6,000	*	*	*	*	■	8,000	†	.....
Annual Sav'g under Consol'ted Gov't ..	27,395	160,123	38,532	.....	.....	.....	.....	.....	46,617	33,798	.....

CONSOLIDATED STATEMENT OF EXPENSES—Continued.

DATES.	For School Lots and Buidings.	Current Expenses of Free Schools.	Purchase of Wharves Lots and Buildings and fitting up do.	Am'ts paid by way of Salaries and Compensation to various officers, their Deput's and Clerks	Salaries of City Policemen.	Extra Legal Services exclusive of Salaries of District and City Attorneys.	Office rent, fuel, light, stationery, furniture and other contingent expenses of various offices.	Incidental Expenses of Common Council, Supervisors, Gra'd Jury and the several Courts.	Paid for legal Fees of Just's of the Peace, Constables, Jurors, and Witnesses.	Annual Expenses of Elections.	Expenses about the City Hall.
June 30th, 1853 to June 30th, 1854. ..	20,033	42,000	265,314	252,898	87,334	25,250	34,720	11,186	3,004	21,669	57,632
June 30th, 1854 to June 30th, 1855. ..	52,683	105,151	61,119	320,345	177,572	28,336	46,658	22,089	3,485	22,920	54,058
June 30th, 1855 to June 30th, 1856. ..	.....	112,648	100	235,094	110,193	726	9,347	3,287	2,796	10,136	8,769
Grand Total—Dollars..	72,716	259,799	326,583	808,337	375,099	54,312	90,725	36,562	9,285	54,725	120,459
Average per Annum...	36,358	86,599	108,844	269,445	125,033	18,104	30,241	12,187	3,095	18,241	40,153
Annual Expenses of Consol'ted Gov't ..	.....	86,599	‡	74,400	43,200	Nothing.	Nothing.	*	3,095	432	*
Annual Sav'g under Consol'ted Gov't ..	.....	.....	.....	195,045	81,833	18,104	30,241	.....	.....	17,809	.....

CONSOLIDATED STATEMENT OF EXPENSES—Continued.

DATES.	Printing and Advertising.	Stationery.	Sundry expenditures not included in the foregoing.
June 30th, 1853 to June 30th, 1854. ..	33,657	12,487	39,600
June 30th, 1854 to June 30th, 1855. ..	46,431	18,800	86,854
June 30th, 1855 to June 30th, 1856. ..	13,842	13,789	10,857
Grand Total—Dollars..	93,430	45,076	137,311
Average per Annum...	31,143	15,025	45,770
Annual Expenses of Consol'ted Gov't ..	.....	250	§ 70,000
Annual Sav'g under Consol'ted Gov't ..	.....	14,775	.....

RECAPITULATION.	
From the 30th of June, 1853 to the 30th of June, 1854..	$1,831,825
" " 1854 " " 1855..	2,646,190
" " 1855 " " 1856..	856,120
Total	$5,334,135
Average per Annum	1,778,045
Total Annual Expenses under Consolidated Government ..	330,576
Annual Saving	$1,447,469

* See "Sundry Expenditures." † See Contingent Expenses of Fire Department.
‡ Can not purchase or sell real estate, but may build upon and improve that owned by City and County. § See Remarks.

REMARKS

Appended to the Tubular Statement, showing the Expenditures of the City and County of San Francisco, from June 30th, 1853 to June 30th, 1856, exclusive of all sums paid on account of Principal and Interest of Outstanding Indebtedness.

1. In the statement of expenses incurred for maintenance of the indigent sick in this county, are included the sum of $207,529, paid by the State during the years 1854–5, and the amount of $150,000, which is *estimated* as the amount paid by the State for the same object during the preceding year. The former sum is exact, being taken from the State Controller's Report; but the latter is estimated, for want of access to the proper official documents.

2. That subsequent to the year ending June 30, 1854, warrants were issued to the Sheriff for the amount of his bill for fees, compensation for deputies and subsistence of prisoners together, and it being impossible to find the several audited accounts, it has been found necessary, in order to get at the amount that was allowed for the item of subsistence of prisoners in the County Jail, subsequent to that date, to take the proportion, which was found to have varied but slightly, one month with another, during the twelve months next preceding. The total amounts of the bills audited—supposing, of course, that warrants were drawn only for the sums due—are contained in the Statement precisely as shown on the County Records. But the exact proportion which the items referred to bear to each other may vary, though it is believed not materially, from the Statement.

3. The expenditures for lighting the streets, etc., have been ascertained in part by inspection of the gas bills, sued on and sworn to, by the Agent of the Company, but not audited by the proper officers of the city.

4. There are supposed to exist claims for legal services, contracted during the year ending June 30th, 1856, the amount of which does not appear on the public records, and which are therefore not entered in the Statement. It is possible, also, that there may be other expenditures, incurred during each of the three years, which are similarly situated, although it is believed that the amount can not be large.

5. In regard to the compensation of the different Treasurers, it has been difficult to ascertain what amounts they actually did receive, from the manner in which the books have been kept, and from the fact that,

in several instances, they seemed to have claimed and exercised the right to help themselves to such amounts as they considered their legal commissions, without the necessity of having their account previously audited, and a warrant issued for what was found due them. The sums appearing in the Tabular Statement as compensation to the various Treasurers, their deputies and clerks, may very probably fall considerably short of the amount of money withheld by some of them, or they may not,—the object of *this* Statement being to show, not whether their accounts were duly settled, but what amount they received as compensation for official services, as nearly as it can be ascertained; in other words, to show the items of public expenditure, and not the losses or defalcations, if any exist.

EXPENSES UNDER THE CONSOLIDATED GOVERNMENT.

In relation to the several amounts set down as the expenses under the Consolidated Government, the following explanations are made:

1. That these amounts are set down as the maximum, or utmost limit to which the expenditures may be carried under the law. The amount may be less, but in no event or contingency can it be *more* than the amount given in the Tabular Statement. [See Consolidation Act, Secs. 95 to 98, inclusive.]

2. Although the sum of $70,000 is set down as *liable* to be expended under the last general head, under the title of "sundry expenditures not included in the foregoing," yet until all the preceding items which constitute the ordinary expenses, are *actually paid*, and a *surplus* remains in the Treasury, no expenditures can be made under that appropriation, and then only to the extent of the surplus on hand, and even in that event, only for specified objects and within the legal limits as to amount. [See Sec. 76 and 15th subdivision of Sec. 95]

3. Of the amount set down in the Tabular Statement as salaries and compensation of the officers of all departments of Government under the Consolidation Act, $19,400, a little over one-fourth of the whole sum consists of salaries of Chief and Assistant Engineers, Bell-Ringers at the City Hall, and Secretary of the Board of Delegates of the Fire Department, as fixed by the Act of 1855, and not by the Consolidation Act.

4. In the salaries and compensation as set down in the Statement, are included salary of President Supervisor, Auditor, Police Judge, Chief of Police, Superintendents of Streets and of Schools, District Attorney, Treasurer, Surveyor, Assessor and Deputies, legal fees of Sheriff and Clerks in criminal cases (estimated,) County Judge, Coroner, and Judge of the Court of Sessions. The salaries of the Judge of the Superior Court and Dock-Masters, will be more than balanced by the fees collected by those officers and paid into the treasury.

5. It will be observed that the expenses of Free Schools, supposing the amount to be kept within the average of the last three years, amounts to one-half as much as the total amount of the *ordinary* expense of all other departments of the Consolidated Government, and to more than one-third as much as the expenditures for all those

departments, ordinary and extraordinary, can ever amount to, however large a surplus revenue may exist. But if the expenses of Free Schools should amount to $132,400, as estimated by the Board of Education on the 31st of March last, then that department will cost more than three-fourths as much as the ordinary expenses of all the other departments of Government together.

The mode of ascertaining the expenditure of the Government and the disbursements from the treasury, in future, is simple and easy under the provisions of the Consolidation Act; because every demand whatsoever must be presented to the Auditor, and registered with its number, date, amount, to whom and on what account allowed, and out of what fund payable; and all demands not so presented within one month after they become due, are forever barred by limitation of time, with certain exceptions. [See Sec. 90.] A single glance at the Auditor's Registry of Allowed Demands will at any moment show the whole amount of expenditures which have accrued at any period not within one month of the time when the inspection of the books is made.

In all calculations the fractional parts of dollars were rejected.

It will be noticed that, supposing the expenditures under the Consolidated Government to be carried to the utmost legal limit, the amount which will still be saved to the tax-payers, annually, is $1,447,469, which is the difference between the total annual cost of government under the present system, and the annual average of expenditures for the last three years.

I, EDWARD BYRNE, do certify, under oath, that this and the foregoing detailed and consolidated statements exhibit, as the titles import, a true and accurate account of the expenditures of the City and County of San Francisco, during the three years ending June 30, 1856, (including the amount of $357,529 expended by the State for support of the State Marine Hospital,) as nearly as I have been able to ascertain the same from the most careful and diligent examination of the proper books in the Auditor's and Treasurer's Office, and from other sources,—the "Remarks Appended" being considered a part of this certificate.

EDWARD BYRNE.

Subscribed and sworn to before me, this 1st day of September, 1856.

E. R. CARPENTIER, Notary Public.

ADDITIONAL OBSERVATIONS.

In proof of the accuracy of the estimate of expenses under the Consolidated Government, contained in the foregoing Statement, the Auditor's Report for the quarter ending September 30, 1856, is hereto appended,—from which it will be perceived that the current expenses of all departments of the City and County Government for that quarter, so far as they had then been audited, are $77,572; the amount allowed on account of principal and interest due upon the mortgage on the City Hall, and the appropriation of $2,000 made by the Legislature for the relief of the Harbor-Master, being deducted from the total amount audited, as constituting no part of the current expenses of the present Government. To this amount of $77,572, should be added the salaries, expenses of Schools, and subsistence of prisoners for the month of September, which were not audited at the date of the Quarterly Report —say $18,856—and we have for the total expenses of the quarter, $76,428; or say 5,720 for the year, at the same rate, which is $24,856 below the estimate set down in the Tabular Statement. The average quarterly expenditures of the city and county, during the last three years, have been $444,511; and thus it appears that the saving for the first quarter is $368,081. The amount of $1,447,469, which is set down in the Statement as the estimated Annual Saving under the Consolidation Act, may therefore be regarded as very nearly approaching to exactness.

It is to be observed, however, that the expenses of Free Schools, which are not a charge on the General Fund, but can only be paid out of the School Fund, will inevitably have to be reduced at least $4,000 a month, in order to bring them within the resources upon which the payment of them is exclusively dependent. This reduction, which is a measure of absolute necessity, will bring the whole annual expenditures down to about $260,000.

It will also be observed that, in stating the receipts into the treasury, the Auditor gives only the amount as it appears from the Treasurer's receipts, countersigned and registered in his office. But in point of fact, most of the Treasurer's receipts were not taken to the Auditor to be countersigned and registered, as they ought to have been. On examining the Treasurer's Monthly Statements, we find that he had received, in cash and audited accounts, the sum of $77,138, besides what had been paid in for the use of the State Treasury: so that the receipts have exceeded the expenditures for the first quarter.

On the other hand, it will be found on examining the Treasurer's books for the preceding three years, that the expenditures of the city and county during the same quarter have uniformly exceeded the receipts by a very large amount—probably several hundred thousand dollars.

Report of City and County Auditor for Quarter ending September 30, 1856.

RECEIPTS.

Total amount of receipts into treasury, registered		$11,927 56
Of which amount there has been paid in—		
For Taxes	$7,888 04	
For Licenses	140 00	
Received from City Sexton	22 50	
Received on account of Poll Tax	387 60	
Fines in Police Court	1,458 15	
Dock-Masters' Dues	1,982 22	
Received on account of Military Tax	49 05	
		11,927 56

DISBURSEMENTS.

Total amount of accounts allowed		$95,557 01
Of which amount there has been drawn—		
On the Police Fund	$10,261 55	
On the General Fund	64,941 19	
On the School Fund	18,354 27	
Also, Harbor-Master's Salary to January 1st, 1857, not designated from what fund payable	2,000 00	
		$95,557 01

I would call the attention of the public to the fact, that the draft on the General Fund is much larger this quarter, in consequence of the payment of the mortgage on the City Hall, amounting to $35,984 12.

Respectfully,

FREDERICK D. KOHLER,
City and County Auditor.

PROSPECTUS

OF THE

CALIFORNIA AND NEW YORK

STEAMSHIP COMPANY.

OFFICE OF THE COMPANY, 124 MONTGOMERY STREET.

SAN FRANCISCO:
PRINTED BY A. HAMILTON, 130 WASHINGTON STREET.

1857.

CALIFORNIA & NEW YORK STEAMSHIP Co.

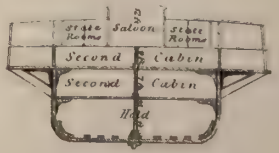
PROSPECTUS

CALIFORNIA & NEW-YORK STEAMSHIP Co.

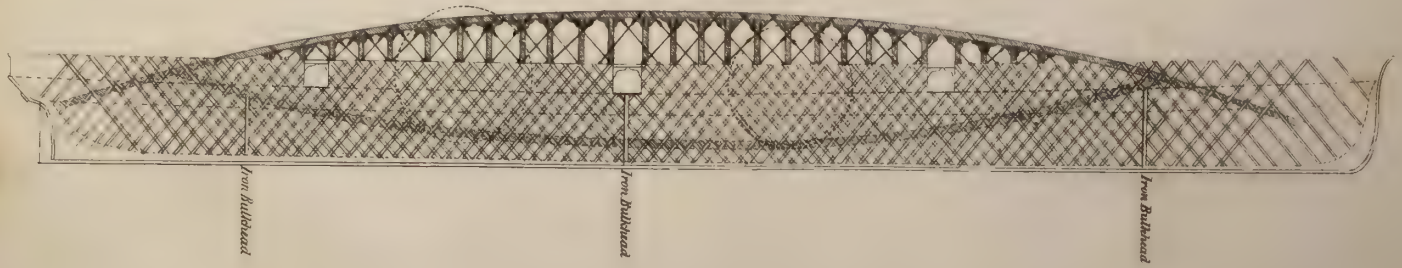
PLAN

SHOWING STRENGTHENING ARCH & ITS CONNECTION WITH IRON DIAGONAL BRACES

Midship Section



Midship Section.



Lith.ed at Britton & Rey S Francisco

INTRODUCTION.

In submitting the following Prospectus to the Public, for a new Steamship Line between San Francisco and New York, and New Orleans, it is not improper to state, that among the many causes which have retarded the growth and prosperity of our State, none have been more potent than the monopolies of ocean steamship companies, which (having no proper interest in the successful growth of our country) have, in the transportation of passengers to and from our shores, not scrupled to extort from them an exorbitant return upon the capital invested, even while it is palpable to all that the best interests of our State are suffering in consequence.

Enormous and ruinous rates of passage have been exacted, lessened at times by temporary and spasmodic contention between the established lines, to be followed only by still more extravagant extortions.

Our people are at last awakened to the necessity of action in this matter, and are resolved to shake off the incubus which has so long oppressed them. A steadily increasing immigration is our only guaranty of future greatness as a State.

But how is this to be obtained? Speeches in Congress are in vain! Immigration societies, with the present rates of passage, are useless; the Pacific Railroad is too much the work of time—all plans and schemes yet devised, have been of no avail.

What we want above all other things, is a safe and speedy means of transportation to our shores, and at rates which, while being fixed and uniform, shall yet be within the means of all.

To accomplish this, a line of Steamships must be established by our own people, seconded by our own capital, and combining with a fair return for money invested, the nobler object of contributing to the growth, wealth and lasting prosperity of our State.

At present, the man of money in the Eastern States can go west, purchase and settle upon a farm, for the mere passage money necessary to land himself and family upon our shores, while the thousands of farmers and mechanics in Europe who would gladly fix their homes among us, find it impossible from their scanty gains, to amass the sum necessary to convey them hither.

Let us once have a line of Steamships established which shall place the rates of passage within the reach of all industrious and energetic men, and an immediate and permanent tide of immigration will set in to our shores not only from our own old homes in the East, but from every part of the globe where industry, energy and talent seek a more enlarged scope for the exercise of their abilities, or a more certain reward for their exertions. Then will our valleys and hill sides be dotted with the cheerful homes of happy husbandmen; then will our mines yield forth to sturdy arms their stores of untold wealth; then will fair cities spring up on every side, and on the once far off Pacific slope will rise up a nation unequalled in the annals of the world for wealth, power, or splendor. In order to accomplish this it is proposed to establish a People's Line, and to construct Steamships larger, stronger and better in every respect than any ocean steamers now afloat, and of a speed sufficient to make the passage between San Francisco and New York in fifteen days.

The plan of these Steamers, as may be seen by the following prospectus, is to embrace all modern improvements in ocean steamers, together with the new improvement of double motive power and four wheels, which has been practically demonstrated as being a plan whereby a much greater speed, security against detention and economy in fuel are obtained over the present system of one pair of wheels, and is now endorsed by eminent ship builders and scientific men in the United States.

Finally, it is believed that this enterprise will prove highly profitable to the Stockholders as well as beneficial to the State—for, as will be seen by reference to the Prospectus, in addition to the ordinary dividends of the Company it is proposed that each Stockholder shall have the privilege of using or selling one Ticket for passage each year for every share of stock—thus, while creating each shareholder, to some extent, an agent of the Company, it secures to all a dividend of at least 20 per cent. per annum upon the investment, in addition to the regular dividends of the Company.

Capt. M. R. ROBERTS, *Member Board Supervisors*, PRESIDENT.

N. O. ARRINGTON, *Firm of Arrington & Co.*, VICE PRESIDENT.

JULES DAVID, *Firm of Abel Guy & Co.*
M. S. MARTIN, *Merchant.*
FRED'K FRANCK, *Firm of Fred'k Franck & Co.*
EUGENE DELESSERT.
R. KELLERSBERGER, *Swiss Consul, Firm of Ralle & Co.*
W. J. BALLEY, *Firm of Edwards & Balley.*
R. W. HEATH, *Firm of Green, Heath & Allen.*
G. TOUCHARD, *Firm of V. Marziou & Co.*
EUGENE L. SULLIVAN, *State Senator.*
J. STANFORD, *Firm of Stanford Brothers.*
W. HAWLEY, *Marysville.*
E. S. HOLDEN, *Stockton.*

JAMES LUDLOW, SECRETARY.

San Francisco, April 30th, 1857.

PROSPECTUS.

It is proposed to organize a [illegible] Company, and incorporate the same under the Constitution and Laws of the State of California, by the name and style of the California and New York Steamship Company, with a capital stock of *One Million Dollars*, to be divided into Ten Thousand Shares of Two Hundred and Fifty Dollars each.

The object of the Company is to establish a People's Line of first class Steamships on the Atlantic and Pacific Oceans, for the transportation of passengers, [illegible] between San Francisco and New York, and New Orleans to [illegible], should future developments should render a change to Tehuantepec or Honduras, or some other route desirable.

It is proposed to commence operations by building two Steamships, one for the Atlantic and one for the Pacific Ocean, each of the following dimensions, viz: 425 feet keel and [illegible] feet beam, [illegible] tons burthen, and embracing all recent improvements in model and construction for Ocean Steamships; to construct them with ample accommodations for 1,000 passengers and 1,000 tons of freight. The motive power to consist of two beam Engines, with two sets of wheels, [illegible] Engines [illegible] and located in such a manner, as to obtain a vast increase in speed, insomuch that, it is confidently believed, the passage between San Francisco and New York can be accomplished in fifteen days time. Late improvements in engines and boilers will also be adopted, by which the consumption of fuel will be materially lessened—thus effecting an important saving in the [illegible] Pacific coast.

The Ships will be [illegible] by the introduction of two diagonal braces and iron bulkheads, dividing each into four water-tight compartments, so that in the event of injury from grounding or collision, the hull cannot sink. They are also to be built precisely alike, thus ensuring to the traveller the prominent advantage of uniformity [illegible].

The passenger accommodations are to consist of but two departments, Main Cabin or Saloon, and Steerage. The Main Cabin to have 350 feet of uninterrupted length, and to contain 126 state-rooms, sixty-two of which are to be double-bedded and of extra size; a skylight with movable windows to run the entire length of the saloon, thus affording the most perfect method of regulating ventilation. The Second Cabin will [illegible] with [illegible] rooms and distinct apartments for ladies and [illegible], and [illegible] a system of the most thorough neatness, proper ventilation and ample room.

The plans of these Steamships have been drawn, and are at the Office of the Company, [illegible] Montgomery street, San Francisco, at which place they may be seen.

They have been arranged with special reference to the carrying of large amounts of [illegible] on each of the Ships allowing the freight to occupy the space usually devoted to steerage passengers—within which, at least one thousand tons [illegible] which it is proposed to carry at greatly reduced rates.

These plans fully exhibit the advantage arising from the independent working of the engines, etc., by which greater security is guaranteed against detention by a derangement of machinery, fire, or a lee-shore.

At the same Office may be seen proposals from eminent Ship and Engine builders of New York, from which it is ascertained that the Ships can be built at a price within the specified capital stock, including disbursements necessary to deliver one Ship at Panama, and leave a sufficient surplus with which to purchase coal and provisions.

The Steamers can be built and placed on the route, one at New York and one at Panama, within nine months from the time of their commencement, and assessments will only be made as the construction of the Ships progresses.

It is proposed to establish but two prices of passage, and at the following rates, viz: First Cabin $150, Second Cabin $50; thus by the establishment of a fixed scale of prices, the traveller will avoid the disappointment and annoyance so often experienced by the fluctuating rates of passage, and at a cost comparatively small will be enabled to prosecute his journey upon a Ship of unexampled size, perfectly ventilated, having all the comforts of a first class hotel.

It is ascertained that the Company can well afford to carry passengers at the above rates, and make all the money that can reasonably be asked for; although the Steamers will have accommodations for three thousand passengers, yet if they only average five hundred, they will net the shareholders a fair return on their investment; but it is a well established fact, the lower the rate of fare, the greater the increase of travel—therefore, the Company may reasonably expect to average a much larger number of passengers. It is but natural to shrink from crossing the seas in small, slow and crowded ships, and doubtless all have, to a greater or less degree, experienced difficulties in procuring comfortable accommodations upon the ships now in use, especially while in the tropics. It is believed that a voyage from California to New York, performed on the Ships of this Line, if not actually a pleasure trip, will be, at least, far more comfortable than could be obtained upon any other line, while the facilities for the rapid transmission of treasure, freight, express and mail matter, are so far superior to all others as not to require further mention.

The advantages these Steamers will possess over the present lines, are as follow: First—A much larger capacity for the same expense of sailing. Second—A great increase in speed with the same given quantity of fuel. Third—Greater safety and security against detention. Fourth—Superior accommodations to any Ocean Steamers ever built.

In order to identify this enterprise more fully with the vital interests of our State, it is proposed to obtain as many shareholders as possible, and to give the people of California the privilege of taking the entire stock—and as an inducement to the taking of stock, the following right is extended to each, viz: every certificate of stock of $250, upon being presented at either of the Company's offices, shall be entitled to receive, each year, one Second Class ticket, and every three shares of stock shall, in like manner, entitle the holder to one First Class ticket for a passage to or from New York or San Francisco, on any ships of the Company. The holder of such ticket may use or sell the same at his option, thus enabling him to realize an immediate return of twenty per cent. upon the amount invested.

It is a fundamental [illegible] the ownership of the entire route [illegible] a Board of Directors, [illegible] will at once [illegible] results.

The advantages [illegible] organization, may be [illegible]

1st. That the people of California will themselves own and control the line, and the dividends will serve to enrich our own citizens, rather than those of other States.

2d. The stock being distributed among all classes, and in all sections of the State, the line [illegible] consequently [illegible]

3d. The [illegible] will know as well when at the [illegible] they arrive at the office of the Company.

4th. The rate being low, all will have an opportunity to emigrate with, or send for, their families without [illegible] will induce an increased emigration, and enable thousands, who are now here, to send for those they have left behind.

5th. The [illegible] the prominent advantage of [illegible] ticketed to Parlor-room, No. 50, the same right extends to both vessels.

6th. That the [illegible] of great strength, of [illegible] secure against [illegible] wheels, ready to prosecute the voyage.

Annexed are Sections of the Law of the State, under which the Company are to organize:

[Extracts from the Laws of California, relative to Corporations.]

"Section 185. *Articles*—One or more persons [illegible] to the stock of any contemplated company, for the purpose of navigating the ocean, or any bay, river or straits, within this State, with vessels propelled wholly or in part by steam, may be formed into a Corporation for that purpose by complying with the following requirements: [illegible] the capital of such company, shall have been paid in, and 10 per cent. thereof actually paid [illegible] they have, upon oath, acknowledge, before some officer competent to take acknowledgments of deeds in this State, a certificate in writing, and file a copy of the same in the office of the Secretary of State, a duplicate thereof with the County Clerk of each County, [illegible] the part or ports hereafter in this Section mentioned, which shall contain the corporate name of said company, and the objects for which the company shall be formed, the amount of the capital stock of the said company; the number of shares into which it is divided, the amount actually paid in, the term of its existence, not to exceed fifty years; the number of shares, of which said stock shall consist; the number of directors, or trustees, and their names, who shall manage the affairs of the company for the first year, and the name of the port or ports at this State where the principal business of said company is to be transacted."—[Chap. IX, p. 310, Compile of Laws.

"Sec. 195. *Personal liability of stockholders*—Each stockholder in any company formed under the provisions of this Chapter, shall be personally liable for all debts and liabilities of said company, in the proportion to the amount of stock by him held at the time such debts or liabilities shall have been incurred; but no suit shall be brought against any stockholder [illegible] a stockholder in any such company, [illegible] shall be commenced within one year from the time [illegible] a stockholder in such company, nor until an execution against the company shall have been returned unsatisfied in whole or in part."—Chap. IX, p. 314, Compile Laws of California.

ARTICLES OF ASSOCIATION.

The undersigned propose to create a Steamship Company, with a capital of One Million of Dollars, for the object specified and set forth in the Certificate of Incorporation hereunto attached.

When one fourth of the Capital Stock shall have been subscribed, and 10 per cent. thereon actually paid in, as contemplated by Note's Chapter of an "Act concerning Corporations," passed April 22d, 1850, then the Company shall become incorporated by executing and filing as the law requires the aforesaid annexed Certificate.

For the purpose of carrying out the enterprise above indicated, the subscribers, severally, and for value received, agree to take the number of shares, at $250 per share, set opposite our respective names, or any less number that may be allotted us, and to pay ten per cent. thereon whenever we shall be thereunto requested by Messrs. M. R. Roberts, N. O. Arrington, Jules David, M. S. Martin, Frederick Franck, Eugene Delessert, R. Kellersberger, W. J. Bailey, R. W. Heath, G. Touchard, Eugene L. Sullivan, J. Stanford, Wm. Hawley, and E. S. Holden, who have been and are hereby chosen to act as a preliminary Board of Directors, with full and complete power and authority to do all such acts and things as may be necessary and requisite to be done and performed, in order to entitle us to become an Incorporated Company; and the persons above named shall act as a Board of Directors during the first twelve months after the corporation of said Company.

Provided, however, that the said parties, above named, shall not be at liberty to demand, or receive, the 10 per cent. upon the amount of stock, for which we severally subscribe, until the full amount of Two Hundred and Fifty Thousand Dollars shall have been subscribed for.

CERTIFICATE OF INCORPORATION.

The Certificate of Incorporation, referred to in the foregoing article, is as follows:

Know all Men by these Presents:

That the undersigned, citizens of the State of California, do hereby organize themselves into a Corporation, under an Act of the Legislature of this State, entitled "An Act concerning Corporations," passed April 22d, 1850, and do declare as follows:

First—The corporate name of said Company shall be "The California and New York Steamship Company."

Second—The objects for which said Company is formed are, for the purpose of establishing a line of Steamships to navigate the Atlantic and Pacific Oceans, and the bays or rivers, or gulfs, adjacent to either, for the transportation of passengers, freight, property, etc., by such routes as shall be deemed most advisable.

Third—The said Corporation shall continue for the term of Fifteen Years, unless sooner discontinued or disincorporated by an Act of the Legislature.

Fourth—The capital stock of said Company shall be One Million of Dollars, divided into Four Thousand Shares of Two Hundred and Fifty Dollars each.

Fifth—That there has been ———— Dollars of the stock subscribed for, and 10 per cent. thereon paid in.

Sixth—The number of Directors shall be fifteen, and the following named persons shall manage the affairs of the Company for the first twelve months.

Seventh—The principal place of business of said Company shall be at the Port of San Francisco.

In witness whereof the subscribers have hereunto set their respective names and seals, this day of ———— 1857, at San Francisco.

CONSTITUTION

OF THE

CALIFORNIA AND NEW YORK STEAMSHIP COMPANY.

ARTICLE 1. The corporate name and style of this Company shall be "THE CALIFORNIA AND NEW YORK STEAMSHIP COMPANY."

ART. 2. The objects of the Company shall be the navigation of the Atlantic and Pacific Oceans, and such bays, gulfs and rivers, adjacent thereto, as may be necessary to carry out the designs of the Company, for the purpose of transporting passengers, freight and mails between the ports of San Francisco, New York, New Orleans and such other ports as may be deemed advisable.

ART. 3. The capital stock of the Company shall be One Million of Dollars, divided into Four Thousand Shares of Two Hundred and Fifty Dollars each.

ART. 4. The duration of the Company shall be Fifteen Years, unless sooner dis-incorporated by some Act of the Legislature of this State.

ART. 5. The stock, property and concerns of the Company shall be managed by fifteen Directors, who shall respectively be stockholders in the Company, and a majority of whom shall be residents of this State, and who shall, except the first year, be annually elected by the stockholders.

ART. 6. No person shall be a Director, unless he hold, and in his own right, at least three shares of the stock of the Company.

ART. 7. The principal office of the Company shall be in the City of San Francisco, which is the port where the principal business of the Company is to be transacted.

ART. 8. The Directors of the Company shall not pledge the credit of the Company to an amount exceeding fifty per cent. of the capital stock thereof.

ART. 9. No contracts for the construction of steamers shall be entered into by the Directors until an amount, equal to one-half of the capital stock of the Company, shall have been subscribed and twenty per cent. of the same paid in.

Office of the Company, 124 Montgomery Street, corner of Sacramento.

REPORT

UPON THE

CONDITION AND REQUIREMENTS

OF THE

City Front of San Francisco

MADE TO THE

San Francisco Dock and Wharf Co.,

JANUARY 25, 1859,

BY

J. P. ROBINSON,

SACRAMENTO:
H. S. CROCKER & CO.'S PRINT. THIRD STREET.
1859.

REPORT.

SAN FRANCISCO, Jan. 25, 1859.

To the President and Directors of the San Francisco Dock and Wharf Company:

GENTLEMEN:—I am in the receipt of a letter from the President of your Company as follows, to-wit:

JANUARY 10, 1859.

J. P. Robinson, Esq.:

SIR:—By a resolution of the San Francisco Dock and Wharf Company, passed this day, I have been authorized to "select an Engineer to examine into and report upon the present condition and requirements of the City Front."

As you have made sundry examinations, and have familiarized yourself with the matter, will you please report to us at your earliest convenience, and I am.

Sir, yours, etc.

H. S. GATES,
President D. and W. Co.

In reply thereto, I have to say, that I have devoted much time and care in the collation of such facts as

bear upon the subject, and find, as the result of such attention to it,

First—That the soundings of the slips in front of the city, taken at various times since the organization of the same (as illustrated on the accompanying plan, with profiles,) show that the city front, for all purposes of commercial convenience, is being rapidly destroyed. The soundings were lessened, from an average, at low water, of fifteen feet in 1853, to three feet in 1859, at the line of established city front; and from an average of thirty-five feet in 1853, to eight feet in 1859, on a line with the heads of piers; and that the process of filling has been regular and constant in its increase, as shown by the profiles, and the contour lines on map herewith.

Secondly—That the portion of city front most nearly approached by substantial improvements of grading and building, has been ruined, so far as heavy commercial requirements are to be considered; and the injury lessening as this line of improvement recedes from the city front.

Third—That the mud is of a soft nature, proven by the fact that at high water, vessels are forced through it to a mooring along side of the pier heads.

Fourth—That the source from which this embankment of soft mud comes, is from the lower plateau of the city, (originally a cove in the Bay,) the same having been forced into the slip by the progress of improvements from the land outward.

Fifth—That the only way in which this trouble could have been prevented, would have been the con-

struction of an abutment along the line of the city front, against which the material, displaced by the progress of improvement, would have been forced, and there remained; and assisted in the graduation of the city to the extent of the present cubic measurement of increased embankment of mud in the slips.

Sixth—That the necessity for this abutment is far more urgent now than ever before, inasmuch as the work of grading streets and lots on this lower plateau will be required to a greater extent than heretofore, (as the same can be done at less cost, and since piling and planking have proved to be not only expensive in construction and maintenance, but exceedingly dangerous,) and as such grading approaches nearer to the slips, must the extent of injury to the city front, for all commercial purposes, both in length and breadth, be increased.

Seventh—That the sooner such an abutment is constructed, the more readily can the present area of occupied front, having wharves and other commercial conveniences, be reclaimed.

Eighth—That the street grades already completed, and the established and extensive system of sewerage, conforming in their declination to the present line of city front, as well as the improvements in building conforming to the grades and sewerage, should be regarded as a sufficient argument against any change of the line of the city front, or of extension of plateau further into the bay.

The foregoing, I believe, embraces all the important facts connected with the present condition of the city front.

6

PROCEEDINGS

AT THE

THIRD ANNIVERSARY

OF THE

San Francisco Port Society,

HELD MARCH 5TH, 1863,

AT THE

FIRST CONGREGATIONAL CHURCH.

SAN FRANCISCO:
PRINTED BY TOWNE & BACON, BOOK AND JOB PRINTERS,
No. 536 Clay Street, opposite Leidesdorff.
1863.

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EXTRACT FROM THE CONSTITUTION OF THE SOCIETY.

ARTICLE I.

This Society shall be called the "San Francisco Port Society," and shall be auxiliary to the American Seamen's Friend Society.

ARTICLE II.

The object of this Society shall be the Moral Improvement of Seamen, and others connected with the sea in this port, by aiding the parent Society in sustaining the Mariners' Church of San Francisco, and such enterprises connected therewith as this Society shall approve.

ARTICLE III.

Any person may be a member of this Society by paying annually into its treasury, for the purposes named in Article II, five dollars; or a life member, by the payment, at one time, of fifty dollars.

SAN FRANCISCO PORT SOCIETY.

The Third Anniversary of the San Francisco Port Society was held in the First Congregational Church on Thursday evening, March 5th, 1863. The Reports and Speeches were earnest and stirring, and appropriate music, excellently rendered by the well-trained Choir of the Church, added much to the interest of the occasion.

TREASURER'S REPORT.

An abstract from the Report of the Treasurer was read, revealing a balance yet due the Chaplain, on account of salary, yet presenting another marked testimony to the liberality of Californians, and their appreciation of the importance of the work in which we are engaged.

CHAPLAIN'S REPORT.

In appealing to the public in behalf of seamen, we rest our plea on no common ground. Appeals for public sympathy and aid are commonly made in the name of *mercy;* we build hospitals for the sick, homes for the poor, and asylums for the orphan, the blind, and the insane, in *mercy's* name; we send shiploads of grain and flour to the starving in foreign lands at *mercy's* plea; and we practice self-denial, and offer our hearts to the anguish of the sundering of the dearest social ties, that we may go ourselves, or send those we love, to give the Gospel to them that sit in the shadow of death, because sweet *mercy* bids us make the sacrifice.

But when we stand before you, to ask a Home and a Church for the sailor, our plea is in the name of *justice,* not mercy. Give him justice, and he will never ask your mercy. The sailor is no pauper; it is not because of his poverty that he needs a home. He is no

heathen; it is not for his pagan ignorance that we ask for him a church. Indeed he is less obliged to mercy than other men; for when accident or sickness drive him to the refuge of a hospital, he receives that aid which he has already paid for; paid for in advance, with a part of every dollar he has ever earned. So then, we ask aid for him in the name of justice only. We ask it, because he *deserves* it; because he has *earned* it; because you all *owe* it, as a positive debt. We ask for him a home and a church, because, also, he needs them, in order to do *your work* efficiently; and it would be as impolitic, as well as unjust, for you to deny them to him, as it was for Pharaoh to demand bricks of the Israelites, and yet deny them straw. If you want his bricks, you must give him straw; if you want his service—as you all do—you must put him in a condition to render it, by putting it in his power to be a *man* and a *Christian*.

The sailor stands before you and says: "Pay me a little of what you owe me, and I will ask no more. That you may feed on the delicacies of all countries, I must live on hard bread, harder beef, and water too often both scanty and filthy. That you may abide in pleasant homes, sheltered from all suffering and peril, and provided with all comforts and blessings, I must tempt Arctic ice and tropic pestilence, storm and calm, wreck and starvation, peril to life and limb, from accident, from brutal violence and untended sickness, and death in every conceivable form. That you may dwell in the dear delights of social relations, I must live and die unmated, and childless; or else my wife must be practically almost a widow, and my children almost orphans—and who will insure them against suffering and woe, in my frequent and prolonged absences from them? That you may sit in the house of God, and learn the way to heaven, I must live like a heathen, without a Sabbath or a God—the prayer I hear, the howling of winds and rush of waves, or the still more dreadful voice of blasphemy and obscenity, from officers and shipmates; and the religious instruction I receive, the precept and practise of all that is most vile in human experience; what pleasures I enjoy, must be only by brief snatches, and even so, must be of the vilest and grossest. At sea I am liable to necessary dangers and sufferings, and unnecessary injustice and brutality, and on shore I must submit to be plucked in a den of thieves. And all this, and much more than this, I endure for a mere pittance of wages, and I endure it *in your service, and for your benefit and blessing.*"

Such is his plea—and is it not an unanswerable one? The sailor stands to us in the relation of one, who, at a great cost and sacrifice to

himself, confers upon us a multitude of precious blessings, and when he asks us to do what we can for his welfare, he asks us, not for charity, but for justice. He asks for a little—a very little—of what we owe him. He asks that when he comes among us at the end of the toil, privation, suffering and dangers of a long voyage, that he may find, in a friendly Home, a refuge from the relentless gripe of the landsharks, against whose craft and cruelty he is almost as defenseless as a drowning man against the jaws of the sharks of the sea. He asks also, that since our business has robbed him, month after month, of Sabbath rest and Sabbath worship, that he shall find among us a church, in which, during his few shore Sabbaths he may recruit his spiritual life, and a pastor of his own, to lead him to the Lamb of God. And is not his request a most just one?

And yet, strange to say, there are many in this city and elsewhere—business men, too, who are not slow to recognise and pay other debts—who fail to perceive any obligation due the sailor. And there are some who pay the debt only with abuse and slander. There is now living in this city a retired sea captain, who, with his family, occupies a pew in one of our large churches, and who is the possessor of wealth, acquired, as I suppose, by the labors of seamen, who, when asked to contribute to the funds of this Society, replied: "Sailors! I hate 'em! Give money to help sailors! I'd sooner kill 'em all! When I went to sea, I always began with a good flogging all round, to let 'em know I was master. And when I got mad, I beat 'em with belaying pins, handspikes, axes, any thing. That's the way to deal with 'em. Help sailors! Let 'em go to the devil, where they belong." In bright contrast to this man's brutal injustice, stands out the example of the larger part of our most respectable merchants, and others, whose generous contributions to the funds of our Society mark their sense of the debt we all owe to seamen.

And now, at the close of another year of labor, prayer and watching, we have to record the continued and enlarged mercies of our God. We had hoped to have been able to speak to-day of a great revival of God's work, and the conversion of many souls. But though we cannot make this joyful report, we still record, with thankfulness, that at least *the dew* of God's grace has not failed us, and that from the beginning of the year to its end, there has been no time in which the presence and working of the Holy Spirit, have not been manifest among us, either in the conviction and conversion of sinners, or the growth in grace of his children. This year has been, by far, the most prosperous year of our work, and that in almost every branch of it.

THE CHURCH.

We have received to the church twenty new members—most of them by profession of their faith—a larger number than in any previous year. The church has also been in a more active and efficient state than ever before, and a larger number of the members have engaged in active labors for souls, in the streets, the Sabbath school, and on ships.

OUR WORKING FORCE

has been greatly enlarged. For eight months of the year we have enjoyed the faithful and persevering labor of our Missionary, J. A. Wirth, and the good results of his labor are manifest. For four months also, we have been favored with the zealous aid of our brother John Byrne, well known here and elsewhere as a faithful and successful missionary to seamen. I desire to record here my own gratitude to God and to these dear brethren, for the important help they have rendered me in various branches of my own work.

Through the mercy of God, another helper also has been given us, and that in a part of our field hitherto most neglected of all. A young woman, whom God had prepared for the work in his own wise way, has been sent among us, to open a day school in the church, to labor in the Sabbath school, and to visit among the families that reside in our neglected part of the city. Her labor is already bearing good fruit, and promises most important and beneficial results.

Besides these special workers, the faith and love of the members of the church have been more manifest than before, in labors for souls, both on ship and shore.

OUR SEA MISSIONS

are also in a prosperous state. Six of our new members were received from the U. S. steamer *Lancaster*, during her visit to this port last summer, as the fruits of the labors of our brother Wirth, on board that vessel. We have our men at this time upon three of the United States vessels on this coast—the *Lancaster*, *Narragansett*, and the *W. L. Marcy*—and we hope to hear of good fruit from their labors. We have had, during all or a part of the year, twenty-six of our members laboring for God upon the sea. Some of these have been furnished with libraries of religious books, for loaning among their shipmates, and others with packages of tracts and other religious reading. All these are charged to labor zealously for the salvation of souls, and we know that some of them have labored, both with zeal and success. We

lay great stress on this branch of our work, and design to enlarge it as much as possible. We believe that the greater part of God's work *for* the sea must be done *upon* the sea, through the personal efforts of converted sailors.

We keep a strong hold upon our absent members, by means of the correspondence which their church covenant requires them to maintain with us, and we have yet to hear of the first of our sea-members who has denied his Saviour by falling into sin.

THE HOSPITAL

has been the scene of much earnest and fruitful labor during this year, in which our missionaries have borne their full share. At no time has the work of God ceased there. At no time have we visited there, without finding inquirers after salvation among the patients, and not a few of them have found peace and joy in Christ. I would that all who care for the salvation of seamen, might see what I have seen there, of the power of God's grace. That growling, cursing Swede—a true Arctic bear—now lying month after month in almost unintermitted agony, but speaking now, the language of patient resignation and trust in Jesus Christ. The raving maniac, like him of old among the tombs, brought to sit meekly, in his right mind, at the feet of Jesus. That poor wretch, paralysed, blind, and dumb, with hardly any sense left him, but that of hearing, yet who by uncouth, but expressive signs, gives evidence that God's light is shining into the only window to his soul.

And that other great sinner, stricken with mortal disease, and with strong conviction for sin, who, careless of the gibes and curses of those around him, gave himself, with all his soul, to the great work of finding Jesus; who found him, too, and rested on him, with no doubtful trust, and to whom God granted a dying testimony, such as few are privileged to witness, and which struck that blaspheming crowd dumb with wonder and awe. No other part of our field is so rich in present fruits, as the hospital; chiefly, because no other affords such an opportunity for continuous labor.

OUR RELIGIOUS MEETINGS

have been multiplied beyond former practice. We have two preaching services, a Sabbath school, and a prayer and experience meeting, on Sunday, besides a preaching service, by our missionaries, on the wharfs. On Tuesday evening, a Bible class in the church, and on Wednesday, Thursday and Friday evenings, prayer meetings in

the church, a temperance sailors' boarding-house, and the Sailors' Home—making five evening meetings during the week. These are none too many for our peculiar field; indeed, had we a sufficient laboring force in the church, they might be profitably increased.

THE SAILORS' HOME.

We have great reason to thank God for the present condition and influence of the Sailors' Home. It has been so conducted by former superintendents, as to prove a great hindrance to our work. But now it has passed under the superintendence of Capt. Stewart, who is a deacon in our church, and already we feel the beneficial influence of the turn in the tide, which we believe will bring into our port many a rich cargo, hitherto kept waiting outside. Of the operations of the Home, it is not my province to speak, as the institution is not under the control of the Port Society; yet we have a deep interest in its management, because it must ever exert a powerful influence, for good or evil, upon our work.

LABORS OF THE CHAPLAIN.

My personal labors, also, have been increased beyond those of any former year, though I have been greatly embarrassed, by difficulties and labors that ought never to come in a chaplain's way. I have delivered 117 sermons and public addresses, administered the ordinance of the Lord's Supper 13 times, and the rite of baptism to five persons, and officiated at four funerals and six marriages. I have made of visits—pastoral, 161; to Sabbath schools, 44; to the Hospital, 154; to vessels in port, 434; to boarding-houses, 48; and of others connected with my official work, 1,208. I have distributed, chiefly in the Hospital and on shipboard, 202 Bibles, 219 Testaments and other religious reading matter, equivalent to 385,963 pages of tracts, besides considerable other reading matter, not of a religious character. I have written 102 pastoral letters, and received 79. I have received 120 official calls. The pressure of a multitude of duties prevents my opening an office, or the number of these calls would be very much greater.

I have held 1,853 conversations regarding personal religion. Twenty-eight persons have been hopefully converted to God, and I have conversed with more than a hundred who were inquiring the way of salvation, most of whom have soon disappeared; and in regard to many of these, I feel confident that the Spirit has already finished the work he had before begun. I have written 18 articles for publication,

attended 336 prayer meetings, 38 meetings of the Bible class, and of other religious meetings 38.

A NEW CHURCH NEEDED.

Our Sabbath congregations have been increasing during the year, and on some Sabbaths we have felt the need of more room, in our building. Had we a larger house in a better place, twice as many hearers as now, might be gathered in. We trust the Lord will move the hearts of those able to do it, to provide us with the needed room.

And now we bid farewell to another year of labor. Its record is made and stored away against the day of judgment. While we mourn our own deficiencies, we rejoice at the good hand of our God upon us, and pray that to-morrow may be as this day only much more abundant.

J. ROWELL, Chaplain.

MISSIONARY'S REPORT.

To the San Francisco Port Society:—Eight months have elapsed since I was appointed by you a Missionary to Seamen, and being called upon to give in a report of my labors, I will try to inform you of what has been going on in my department during said time. The field of labor to which it is my duty to attend, is chiefly among the sailors' boarding-houses, coasting vessels, and the Marine Hospital. The latter I have visited pretty regularly, about twice a week, and three times I held service there in the absence of Rev. Mr. Rowell. A good work has been going on in that place. Some have been converted from time to time, and God's spirit has been striving with more or less of the inmates continually. But I presume that the Chaplain will give a more detailed account of the work in the hospital, and I will therefore only add a few remarks in regard to my mode of working there. I have gone from bed to bed, and from ward to ward, speaking a word for Jesus wherever I could find an ear to listen, praying also at times, with such as were really serious. Sometime ago I found in the colored ward, one that had just come into the hospital, and who listened very attentively to me. I felt encouraged, and when Bro. Byrne, and another brother who was with him, entered, I proposed to have prayer. We sang a hymn and prayed, and I left, with high hopes for the man's salvation. He did not appear to be very sick, and I little thought that we had been performing his funeral services; but so it was; in less than forty eight hours afterwards, he

was a corpse. God only knows what state he died in, but he appeared so serious, the only time I saw him, that I cannot help hoping that he made his peace with God, before he was summoned into Eternity. There were at this time, in the same ward, two young converts, and a Portuguese sailor, who was also seriously impressed.

During the dry season of the year, I spent, almost daily, a few hours on the wharfs, chiefly among coasting vessels, watching for opportunities to speak a word in season, and leaving a tract or a printed invitation to attend our meetings, whenever I thought it good to do so. During the winter season however, I have not been on the wharfs so often. Now and then, I found one that gave me a little encouragement, but lost sight of him in most cases. Some good has however been done. I trust the seed has been sown, and God, who alone can give the increase, will do so, no doubt, in his own good time.

I have also visited most of the sailors' boarding-houses, about once a week, giving out tracts and church invitations, and entering into conversation with any who were willing to be spoken to. Sometimes, too, I have addressed a crowd collectively, often succeeding in gaining their attention for five or ten minutes. I have also invited sailors every where, to visit me in my room, promising to give them a bible or testament or to lend them some book to read. Now and then one has accepted my invitation, when I have furnished him with a bible, or some other reading matter, and prayed with him. What good may have been done in this part of my work, we cannot see now. The very nature of a sailor's business prevents us from watching the effects which may be produced. He is here to-day, and out on the deep to-morrow, and besides this, the influences in those dens, called "Sailors' Boarding-Houses," are such that it appears almost like a miracle to see a soul converted to God, while boarding in one of them. One soul has however been brought to the feet of Jesus, even while living in one of them, and I have had also the satisfaction of seeing many attend worship in the Bethel, who, without an invitation, would probably have never entered the house of the Lord. The Sailors' Home, where I am performing the duties of Chaplain, is, however, the most promising field. There I have more opportunities to get acquainted with the boarders. I can take them to my own room, converse and pray with them; and being away from liquor, and surrounded by good influences, they are much more inclined to receive the gospel. Many have left the Home in an interesting and hopeful state of mind, and of late, especially since Capt. Stewart became Superintendent of that Institution, I have received much encouragement.

Three souls have, as I believe, been truly converted to God within a few weeks past, and others are seriously impressed with the importance of religion. Our prayer meetings, held every Friday evening at the Home, have been continually increasing in numbers and interest; we have had an average attendance of forty persons during the month of February, and at every one of them a few rose to request an interest in our prayers.

On Sundays, I have, for several months past. held services on one of the wharfs, in connection with Christian brethren belonging to other churches. Whenever the weather was favorable, we have had large, and for the most part attentive audiences. Sometimes a drunken person, or a bitter Roman Catholic has tried to disturb the meetings, the result of which, however, has been invariably to bring together a larger congregation. The Lord has been with us in those meetings. Many have been induced by them to come to church, and several persons were, to my knowledge, awakened; but eternity alone, will reveal the actual good done to them. One young man, who, I believe was first awakened by attending one of those open air services, left a coasting vessel a few days ago, visited me, and told me that he had given his heart to Jesus, and felt happy in the consciousness that his sins were forgiven, that Jesus was his Saviour, and heaven his eternal home.

I might add many interesting facts, but do not wish to make this report too lengthy. My heart's desire is to see the abundance of the sea converted unto God. May he pour out His Holy Spirit upon me, and thus enable me to labor more faithfully and effectively for the conversion of my sea-faring brethren.

JAMES A. WIRTH, Missionary.

San Francisco, March 3d, 1863.

After the reading of the Reports, earnest and affecting addresses were made by Peter Larsen, a converted sailor, John Byrne, a sailors' missionary, Capt. Baker, of Portland, Me., J. F. Stewart, of the Sailors' Home, and by the President of the Society, and the exercises were closed with the stirring song, "Call up the Watch," and with the benediction.

San Francisco Chamber of Commerce

ABSTRACT OF THE PROCEEDINGS

AT THE

ANNUAL MEETING

OF THE

CHAMBER OF COMMERCE,

OF SAN FRANCISCO,

HELD MAY 9th, 1865,

With the Report of the President.

JAMES DE FREMERY, ESQ.,

FOR THE YEAR ENDING MAY, 1865.

PUBLISHED BY ORDER OF THE CHAMBER.

SAN FRANCISCO:
"MINING AND SCIENTIFIC PRESS" PRINT,
Corner of Clay and Sansome Streets.
1865.

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Hallock, J. Y., of J. Y. Hallock & Co.
Heynemann, H., of Heynemann & Co.
Hobart, Joseph, of Hobart, Bros. & Co.
Hort, Samuel, of C. Adolphe Low & Co.
Hosmer, Charles.

Howes, George, of George Howes & Co.
Hyde, W. C., of Dibblee & Hyde.
Hyman, P. C.

Jones, E. H., of Jones, Dixon & Co.
Jones, M. P., of Jones & Co.

Kellogg, George H., of Flint, Peabody & Co.
Koopmanschap, C., of Koopmanschap & Co.
Kruse, Edward, of Kruse & Euler.

Ladd, J. W.
Ladd, W. Frank, of C. W. Brooks & Co.
Larco, Nicholas.
Lazard, E., of Lazard Freres.
Lazard, S., of Lazard Freres.
Low, C. Adolphe, of C. Adolphe Low & Co.
Lowenhelm, Julius, of J. Lowenhelm & Co.

Macondray, F. W., of Macondray & Co.
Main, Charles, of Main & Winchester.
McCreary, Andrew B.
McLane, Louis.
McPherson, A. W.
Meyer, Wm., of Rodgers, Meyer & Co.
Miller, Albert.
Moss, J. Mora.

Newhall, H. M., of H. M. Newhall & Co.
Newton, John B., of J. B. Newton & Co.
Norris, Wm.

Otis, James, of Macondray & Co.

Pierce, Nelson.
Polhemus, C. B.
Pope, John F.

Ralston, W. C.
Reynolds, Nicholas, of Reynolds, Howell & Ford.
Roberts, J. B., of Roberts, Morrison & Co.
Roeding, Frederick, of R. Feuerstein & Co.
Rollinson, J. R.
Ross, Daniel L., of Ross, Dempster & Co.

Sachs, L. of L. & M. Sachs.
Sather, Peder, of Sather & Co.
Saulnier, John, of John Saulnier & Co.
Seligman, A., of J. Seligman & Co.
Seyd, Ernest.
Sharp, Louis,
Sneath, Richard G.
Stanford, Philip A., of Stanford Bros.
Stone, Edward F., of Morgan, Stone & Co.
Stowell, W. H.
Swain, Robert B., of R. B. Swain & Co.

Talbot, W. C., of Pope & Talbot.
Taylor, C. L., of C. L. Taylor & Co.
Thomas, J. B.
Tubbs, A. L., of Tubbs & Co.

Verplanck, P.

Wadsworth, Wm. R., of Wm. R. Wadsworth & Son.
Weaver, Philip L., of Moses Ellis & Co.
Wedderspoon, John, of Cross & Co.
Wessinger, F. S.
Whiting, M. S.
Wightman, John, of Wightman & Hardie.

Chamber of Commerce of San Francisco.

ABSTRACT of the Minutes of the Fifteenth Annual Meeting of the Chamber of Commerce of San Francisco, held at its rooms, Merchants' Exchange, Clay Street, May 9th, 1865.

JAMES DE FREMERY, Esq., President, in the Chair.

Present, the following members:—Robert B. Swain, A. Seligman, Charles Clayton, E. L. Castle, Adam Grant, E. H. Jones, George H. Kellogg, W. Frank Ladd, Nicholas Larco, E. Lazard, C. Koopmanschap, Peder Sather, L. Sachs, C. B. Polhemus, John B. Newton, Albert Miller, H. M. Newhall, Isaac Friedlander, Moses Ellis, George H. Eggers, E. de Rutte, George Gordon, C. J. Dempster, Rodmond Gibbons, M. P. Jones, Edward Kruse, Nelson Pierce, William Meyer, A. W. McPherson, W. C. Talbot, Edward F. Stone, W. H. Stowell, Richard G. Sneath, A. Phillip Stanford, Nicholas Reynolds, E. B. Benjamin, G. W. Beaver, Washington Bartlett, L. B. Benchley, John Wightman, Alfred Borel, C. Wolcott Brooks, and William R. Wadsworth, Secretary.

The minutes of the last monthly meeting were read and approved.

The following communication, received from the Detroit Board of Trade, was presented:

BOARD OF TRADE ROOMS, DETROIT, Mich., March 28th, 1865.

President Board of Trade, San Francisco, California:

SIR,—At a meeting of this Association, on the 6th instant, the following resolutions, after full discussion, were unanimously adopted:

Resolved, That the President be requested to address Circular Letters to the presiding officers of the several Boards of Trade in the loyal States and British Provinces, asking the appointment of delegates to attend a Convention, to be held during the approaching summer, for the consideration of the following subjects, viz.:

Commerce, Finances, Communications of Transit from the West to the sea board, Reciprocal Trade between the United States and the British Provinces, and such other business as may come before the Convention not of a purely local or political character.

Resolved, That Detroit is a central and convenient place for the Convention to meet, and we hereby tender the Board of Trade rooms for its accommodation.

In conformity with the foregoing resolutions calling a Convention, the object being therein stated, I shall simply ask for them your careful consideration, and, if approved of, that your Association will cordially co-operate by sending a suitable number of its members to the proposed Convention, to assist in discussing the various and important commercial questions which may properly come before it.

It is believed that this is eminently a proper time for the business men of this country, through their several Boards of Trade and Chambers of Commerce, to meet in council, to discuss matters of finance and commerce, and thus give to the people at large the life-long experience of men devoted to commercial affairs. Such discussions cannot produce evil, and may result in material good.

I would beg leave to name the second Tuesday in July, proximo, for the Convention to meet in Detroit. If any other time and place should be thought more desirable by a majority of the Boards, their views will be adopted. When we hear from the several Boards of Trade on the subject, this Association will communicate their action to you.

Hoping to hear from you at your earliest convenience.

Your obedient servant,

JOSEPH ASPINALL, PRESIDENT.

After some discussion, the President was requested to name a committee of three or more members, to confer with the Detroit Board of Trade on the subject of the proposed meeting, and to act as delegates thereat on the part of thi Chamber.

As such committee were appointed, Messrs. C. Adolphe Low, of the firm of C. Adolphe Low & Co., George Howes, of George Howes & Co., Alfred De Witt, of De Witt, Kittle & Co., and Charles W. Crosby.

The following letter from Capt. Edwards, U. S. Coast Survey, was read:

U. S. Surveying Schooner "Marcy,"
San Francisco, April 20, 1865.

Chamber of Commerce of San Francisco, Cal.:

Gentlemen,—By orders of the Acting Superintendent U. S. Coast Survey, I herewith transmit tracings and extracts from my report on the examination of "Rincon" and "Blossom Rocks," in San Francisco Harbor:

"1st. Rincon Rock. This rock lies 375 feet W. by N. ½ N. off the S. E. corner of Hathaway's Wharf, and has only five (5) feet of water on it at low water. It is in the track of vessels hauling in and out from all the wharves in the vicinity. To give fifteen (15) feet at low water, eleven hundred and eighty-seven (1187) cubic yards of rock must be removed. To give twenty (20) feet at low water, sixteen hundred and nine (1609) cubic yards of rock must be removed.

"2d. Blossom Rock. This rock is situated nearly midway between Alcatraz and Yerba Buena Islands, immediately in the tracks of all steamers and vessels bound up or down the bay. It has five (5) feet of water over it at low water. To give a depth of twenty (20) feet, thirty-seven hundred (3700) cubic yards of rock must be removed."

I was not able to determine the character of the rock without employing divers which I was not authorized to do.

I have the honor to be, very respectfully, your obedient servant,

W. S. EDWARDS,
Assistant U. S. Coast Survey.

This letter was referred to a committee consisting of Messrs. C. J. Dempster and Oliver Eldridge, with instructions to report upon the matter at the next regular meeting.

The following communication from the Board of Marine Underwriters was read:

San Francisco, May 5, 1865.

James De Fremery, Esq., President of the Chamber of Commerce, San Francisco:

Sir,—I am instructed by a resolution passed at a meeting of the San Francisco Board of Marine Underwriters, holden April 11, 1865, to ask the concurrence of the honorable Chamber of Commerce in the passage of two resolutions, which have been adopted by the Board, among many others, with the object of defining

the "rules and customs of Marine Insurance in San Francisco." All the resolutions adopted originated in a Convention of Underwriters and Adjusters recently holden in this city, and have been carefully considered and fully discussed. None of them disturb existing customs, nor infringe in any manner upon the province hitherto exclusively occupied by the Chamber of Commerce, excepting the two herewith referred to that body; and the early attention of the Chamber is respectfully invited to the consideration of these rules so that the Board may be enabled to proceed at once to the publication of their work in the manner contemplated by them.

Very respectfully,

C. THO. HOPKINS.
Secretary Board of Underwriters.

"COMMISSIONS IN PARTIAL LOSS.—All commissions actually paid in a foreign or domestic port shall be chargeable as heretofore to the various interests adjusted upon. But no [other] commissions shall be chargeable against insurers on disbursements in Salvage or Partial Losses; nor in General Average when ship and cargo belong to the same owners; nor in any other case where no such commissions have been actually paid, and when no charge therefor would be customary or collectable in the ordinary course of the business of the insured had no disaster occurred."

"APPOINTMENT OF SURVEYORS AND APPRAISERS.—In all cases of Average to be made up at this port, whether General or Particular, whether on hull or cargo, the selection and appointment of Surveyors and Appraisers shall be agreed upon beforehand by and between the insured or claimants in Average, or their representatives on the one side and the representatives of the insurers on the other, and the services of the persons so appointed shall be understood to be wholly disinterested as between all parties concerned. No representative of Underwriters shall be expected to certify, approve or accept any surveys or appraisements made at this port in contravention of this rule, but such documents shall be deemed to be wholly *ex parte* in character, and as such open to criticism or liable to be rejected altogether.

"In no case shall any ship carpenter, rigger or other mechanic, who may have served on a survey, be employed to make the repairs or any part thereof."

After some remarks, the subject was referred to a committee; as members whereof were appointed:—C. Wolcott Brooks, William Meyer and Albert Miller.

The Special Committee heretofore appointed to consider and report upon the circular addressed by the Philadelphia Board of Trade to this Chamber, as well as to all similar bodies throughout the country, presented a report recommending the adoption of the following resolutions:

"*Resolved*, That in the opinion of this Chamber it is impolitic to recommend to Congress an amendment to the Constitution authorizing the taxing of exports until experience after

the close of the civil war has demonstrated that there are any products of the Union which can bear the tax without detriment to the commercial and producing classes of the country.

"*Resolved*, That this Chamber agrees with the Boards of Trade of Boston and Philadelphia in regard to the parties who should be at the expense of the necessary stamps on freight receipts required by the United States Internal Revenue Act; and that efforts should be made to secure uniformity of practice in accordance with the views expressed by said Boards, to wit:

1. That receipts for freight money should be stamped at the expense of the party to whom payment is made.

2. That receipts given at railroad stations on delivery of freight for transportation should be stamped by the railroad company.

3. That through receipts given by transportation companies or lines should be stamped at the expense of the shipper.

4. That receipts given by consignees to railroad companies on the delivery of merchandise should be stamped by the consignees.

5. That receipts given at the ship's side, called mate's receipts, should be stamped at the expense of the ship.

6. That bills of lading should be stamped at the expense of the shipper."

Some discussion arose on the Committee's report, especially as to the taxing of exports, and it was finally laid upon the table for future consideration.

The following gentlemen were duly elected members of the Chamber:—James Bell, of the firm of Falkner, Bell & Co.; Charles Main, of Main and Winchester; Henry P. Blanchard; and James Otis, of Macondray & Co.

Reports from the Secretary, Treasurer, and Librarian were received and placed on file.

The President presented his Annual Report, which was ordered printed.

The Chamber then proceeded to elect officers for the en-

suing year. The President, having been re-nominated, stated that the duties of the office had required a considerable portion of his time during the past year, and more than he could afford to spare from his business engagements, wherefore he declined to be a candidate for re-election.

The election resulted in the choice of the following gentlemen :—

President—Joseph A. Donohoe.

First Vice President—William Meyer.

Second Vice President—C. Wolcott Brooks.

Secretary, Treasurer and Librarian—Wm. R. Wadsworth.

Members of Executive Committee — R. G. Sneath, L. B. Benchley, Albert Miller.

Members of Committee of Appeals—George H. Kellogg, C. J. Dempster, I. Friedlander, E. Lazard, Adam Grant, C. B. Polhemus.

Chairman of Committee of Arbitration—W. F. Ladd.

Members of same Committee, to serve for three months—A. Seligman, E. H. Jones, C. Koopmanschap, N. Reynolds.

Mr. E. B. Benjamin moved the following resolution, which was unanimously adopted :

"*Resolved*, That the thanks of this Chamber are due to James de Fremery, its worthy President for the last two years, for the able and efficient manner in which he has fulfilled the responsible and arduous duties of that position."

Mr. R. B. Swain offered a preamble and resolutions, imposing an oath of allegiance upon such members of the Chamber, as are citizens of the United States, and an oath to abstain from acts disloyal to the government of the United States, on alien members of the Chamber.

On motion of F. L. Castle, said preamble and resolutions were referred to a committee, and the chair appointed, as members thereof, Fred. L. Castle, R. B. Swain, and C. J. Dempster.

On motion, adjourned.

Attest, WM. R. WADSWORTH.
Secretary.

REPORT OF THE PRESIDENT.

Presented at the Annual Meeting, May 9th, 1865.

GENTLEMEN—

I beg to lay before you my report upon the principal matters which have formed subjects of discussion in the Chamber during the past year.

TAX ON MINES.

In my last annual report I called your attention to the Bill then before Congress, which contemplated levying a tax of five per cent. on the *gross* product of mines; and, pursuant to my suggestion, the Chamber proceeded to consider the subject. A memorial to Congress, remonstrating against levying any tax on the *gross* product of the mines, and explaining briefly but forcibly the impolicy of the proposed measure, was prepared by a Special Committee, and after full discussion was adopted by the Chamber, and telegraphed to our Congressional delegation. It was read in the Senate, while the Bill was under debate, and although it did not influence the members to abandon the principle involved in the Bill, and which was ably opposed by the Hon. John Conness, yet it was received with marked consideration, and was instrumental in causing the tax to be fixed at the one-half of one per cent. While this rate of taxation is not regarded as oppresssive to the mining interests of the Pacific Coast, the precedent established by the law that of taxing the *gross* product of the mines must

be esteemed dangerous by those familiar with the nature and risks of mining enterprises, and we can only trust in the wisdom and enlightenment of our rulers to avoid its abuse.

THE CAMANCHE.

At the date of my last report, it was believed here, on the faith of telegraphic dispatches, that the Navy Department and the Underwriters had agreed upon the measures to be taken to save this monitor. Soon after, however, it was ascertained, that the negotiations to that effect had failed, and **no action was taken by the government.**

Although, through measures taken by the Underwriters, almost all the parts of the monitor were recovered from the hold of the "Aquila," cleaned, and mostly put in as good condition as when placed on board the ship, yet the contractors did not proceed to build the monitor, averring that by voluntarily entering into possession of the recovered material, which had before been abandoned by them to the underwriters in the Atlantic States, they would imperil the collection of their claim against the latter, who denied the validity of the abandonment. In response to the general importunities of our citizens for the fulfilment of the contract for the construction of the monitor, the contractors demanded an indemnity of sixty thousand dollars, gold coin, (this being estimated by them to be the minimum cost of replacing what was destroyed, and repairing such pieces as were bent, or otherwise damaged,) and flew off red to cede their claim on the underwriters to whom sawyer would furnish the money. An order pledging the City to pay the said sum of sixty thousand dollars for the purpose of constructing and equipping the "Camanche," was introduced in the Board of Supervisors. A Committee of the Chamber thereupon had several interviews with a Committee from the Board of Supervisors, and with the contractors; examined into the relative positions of the various parties claiming an interest in the "Camanche;" and reported that it would not, in their opinion, be wise for the City to advance funds upon, or to buy, an **uncertain claim upon the Underwriters.**

The matter was pressed in the Board of Supervisors, but no further action was taken by the Chamber in the premises. The complications which arose out of the sinking of the "Aquila," between the various parties in interest, were likely to delay the construction of the "Camanche" for an indefinite period, if the City should refuse to grant the sixty thousand dollars, upon the providing of which amount the contractors declared themselves willing to proceed to construct the "Camanche." The want of a monitor for the defense of the harbor, and an apprehension that a long delay might leave the port exposed at a critical moment, were very generally felt, and the public interest seemed to require that the City should enter into the proposed agreement, which was finally done.

The "Camanche" has since been successfully completed, and it is a source of no less wonder than pride that the genius of American mechanics has invested that diminutive vessel, with such extraordinary powers for destruction, and thereby made her the trusty guardian of the commerce of a State.

POSTAL MATTERS.

General dissatisfaction having been manifested respecting the condition of Postal Affairs on this coast, a Special Committee was appointed by the Chamber to "report on the condition of our Postal Affairs, and to consider the feasibility of improvements and reforms." The labor of this Committee was necessarily arduous, and they submitted, in September last, a voluminous report, exposing mismanagement and abuses in the postal service on this coast; giving copious extracts from the laws and regulations of the Post Office Department, showing that our postal facilities were far short of those provided for by law; making practical suggestions for improvements and reforms; and demonstrating the benefits that would result from a more perfect organization of the postal service. The report was adopted by the Chamber, ordered to be published as matter of general interest to the people of the State, and your President was instructed to forward a copy thereof to the Postmaster General, and to ask his attention to the recommendations it contained.

So far, however, but little has been done in the way of establishing the much needed reforms, and this community continues to enjoy fewer postal facilities than any other commercial city of equal importance in the United States or Europe. Some steps towards improvement have been taken, but they are as yet very short of what might have been expected.

THE CHINA MAIL SERVICE.

While disappointed in regard to the improvement of our coast and inland mail facilities, we have cause for congratulation in the prospect of a steam mail service between San Francisco, Honolulu, Japan, and China; and we have reason to applaud the wisdom and munificence of the Government in granting a subsidy sufficient to secure, beyond peradventure, the success of an undertaking which we have had so long at heart.

The magnitude of the benefits to be derived from the establishment of this line of mail steamers, will depend, to a great extent, upon the character of the ships employed and the general management of the business. We feel solicitous, therefore, that the contract for this mail service may fall into the hands of men both able and willing to carry it out in a liberal spirit. It was this feeling that caused a special meeting of the Chamber to be called, soon after we were apprised by telegraph of the passage of the Bill providing for said service, at which a preamble and resolutions were passed recommending the Postmaster General, for the reasons therein set forth, to give the preference for said contract to the Pacific Mail Steamship Company.

BLOSSOM AND RINCON ROCKS.

The removal of the rocks known as Blossom Rock and Rincon Rock, which often have occasioned serious accidents to vessels, has frequently been discussed among our merchants and sea-faring men.

The Chamber, deeming the removal of these obstructions to navigation highly desirable, passed a resolution requesting

the Superintendent of the Coast Survey to have these rocks surveyed, which request was immediately complied with, and a very complete chart showing the location and extent of both rocks, and the soundings around them, has been presented to the Chamber. It appears, however, that an examination into the character of the rock should be made in order to determine the best mode of removal and the cost thereof.

SPECIFIC CONTRACT LAW.

Although not connected with any action taken by the Chamber during the past year, yet the deep interest naturally felt throughout the mercantile community in all matters pertaining to the performance and enforcement of contracts made payable in coin, will justify me in alluding here to the decision of the Supreme Court of this State in the case of Carpentier vs. Atherton, rendered in August of last year. By that decision, the Act of April 27th, 1863, amending the Civil Practice Act, so as to allow the courts to enforce the execution of contracts in writing, in the particular currency stipulated therein, was upheld. It was generally expected that such would be the nature of the decision, yet the announcement of it was hailed with much satisfaction. It places our monetary transactions upon a firm and solid basis, when covered by the provisions of the Act, commonly known as the Specific Contract Law. And I remark here that it is a substantial proof of the high character and the integrity of the business men of this State, that, notwithstanding the fact that sales of merchandise generally do not come within the scope of that protective Act, and that thousands of these are daily made at coin-values, yet hardly ever a man is found to avail himself of the power he has to legally fulfill his obligation by tendering a currency, which, for the time being may be obtained at a large discount upon its amount in gold coin. The standard of commercial morality in our State is so high, that such dishonesty is seldom met with.

ASSASSINATION OF PRESIDENT LINCOLN.

A recent event, which at the hour of decisive victories over insurgents, has plunged the nation in grief,—which, if it does not form an epoch in history, will yet leave an impression as lasting as any event in the annals of our country, cannot here remain unnoticed. The people, who had just heard of the capture of Richmond, and of the surrender of the army by which that city had been so long defended, were rejoicing at the certainty of an early termination of the civil war, which has devastated so fair a portion of the national domain, when the announcement of the assassination of our beloved Chief Magistrate, by a traitor's hand, struck every heart with a chill, and made men tremble at the enormity of the horrible crime.

President Lincoln, firm in his determination to restore the Union and to abolish slavery, but willing that these ends should be accomplished by means which would interfere as little as possible with the speedy re-establishment of quiet and harmony throughout the land, was pre-eminently qualified to govern the country at this time, and under present circumstances. His assassination, proceeding, as it did, from friends to the rebel cause, has greatly increased the bitter feeling in the Northern States against the Southern rebels and all who sympathize with them, and no doubt the return of good feeling between the different sections of our country will be retarded, and the loss of President Lincoln, in its unfortunate consequences, will be severely felt, for many years to come.

The Chamber, at a special meeting held for the purpose on the 17th ultimo, expressed its sorrow and indignation in appropriate resolutions, and subsequently participated as a body in the funeral obsequies.

MISCELLANEOUS.

Since my last report, we have had to mourn the death of Messrs. Joseph Clark, Fred. A. Woodworth, and Chas. F. Lott, esteemed members of the Chamber. Mr. Woodworth was at

one time a member of the Senate, and he rendered, in that position, good service to the commercial interests of this coast. Mr. Lott was a merchant whose excellent worth, enterprise and liberality were generally acknowledged, and who commanded, in a rare degree, the confidence and the esteem of his fellow merchants.

The number of members at the present time is 116, of whom 80 reside in the City. In my last report I had occasion to observe that an increase in the number of members appeared highly desirable. Such increase, I remark with pleasure, is now on the point of being made. The names of a number of our business men will be presented to you at this meeting, to be submitted to the ballot on a future day.

With a large accession to our ranks, and a corresponding increase in our revenue, we may well hope to be enabled to extend the field of our labors. The formation, for instance, under the auspices of the Chamber, of reliable statistics and reports concerning the various branches of Trade and Manufactures in our midst, will prove interesting and useful. Other measures, also, are under consideration, and, I am informed, will be laid before you at an early day.

The Committee of Appeals has not met during the past year. The Committee of Arbitration met twice, deciding questions not of general interest, which had arisen between foreign vessels and consignees of cargo.

I conclude my report by stating that the Chamber has again been under obligations to the Hon. John Conness, for the transmission of important legislative intelligence, as well by mail as by telegraph, attentions of which the Chamber has already expressed its appreciation by a special resolution.

All of which is respectfully submitted.

JAMES DE FREMERY,

President.

SAN FRANCISCO, May 9th, 1865.

Wm. Craine, Architect.

PUBLIC GRAMMAR SCHOOL HOUSE,

N. W. Corner Bush and Taylor Streets, San Francisco.

7

Department of Public Schools,

CITY AND COUNTY OF SAN FRANCISCO.

TWELFTH

ANNUAL REPORT

OF THE

Superintendent of Public Schools.

SAN FRANCISCO:
WM. P. HARRISON & CO., BOOK AND JOB PRINTERS,
Nos. 413 to 417 Clay Street, below Sansome,
1864.

BOARD OF EDUCATION,

1864,-'65.

M. LYNCH, - - - - - President.

L. B. MASTICK, Pier 10, Stewart Street.....1st District.
JOHN F. POPE, 103, California Street..... 2d District.
WASHINGTON AYER, 605 Sacramento Street..... 3d District.
GEO. B. HITCHCOCK, 413 Sansome Street..... 4th District.
W. A. GROVER, Russ House..... 5th District.
G. H. GRAY, N. E. cor. Commercial & Mont'y Sts. 6th District.
WM. G. BADGER, 411, 413, 415 Battery Street.. 7th District.
J. L. N. SHEPARD, 327 Commercial Street..... 8th District.
S. B. THOMPSON, No. 5 Thompson's Avenue ..... 9th District.
J. H. WIDBER, cor. Kearny and Market Streets..10th District.
M. LYNCH, No. 2, 3d floor, City Hall.....11th District.
ABNER DOBLE, 319, 321 Pine Street.....12th District.

GEORGE TAIT,
Superintendent Public Schools.

DANIEL LUNT, *Secretary.*

OFFICE, No. 22 CITY HALL.

REPORT

OF THE

Superintendent of Public Schools.

To the Honorable, the Board of Education
of the City and County of San Francisco:

GENTLEMEN:—In accordance with the revised School Act of 1863, and in behalf of the late Board of Education, I beg leave to present the Twelfth Annual Report of the Public Schools of this City.

The past year will be notable in the annals of our public schools, for the munificent appropriations made for the erection of school-houses, for the enlargement of the school accommodations, the supply of school furniture, apparatus and other educational appliances, and as a consequence of this liberal expenditure, for the rapid increase of the school attendance.

Never before were the inestimable benefits of education enjoyed by so many of the children of this city. At no former period was the instruction offered by our schools, so thorough and systematic, and so nearly assimilated in its style and quality, to the modes of teaching recommended by the best educational authority of our country.

Recognizing the superior excellence of the school systems of Boston and Chicago, and wisely availing themselves of the wisdom and experience of the distinguished educators in those cities, the late Board have labored earnestly to make the schools of this city exhibit the chief merits of their illustrious models.

Among the most conspicuous of their labors in this direction, may be included the plans of the school-houses newly erected, and the successful introduction of a new course of study into the schools.

As an evidence of the former, we have the substantial and commodious school-house on Bush street, which was originally modeled after the best reputed school buildings of Boston. Had all the features of the original copy been retained in our building, there would have been some diminution in its seating capacity and ornamentation, but greater convenience and comfort to the school, than now exist, would have resulted. School architecture has attained to the dignity of a special science, to which eminent men have devoted so much time and attention, that there is now left no palliation for experimental blunders in devising plans for school-houses.

The new school building in process of erection on Fifth street, designed to accommodate 300 pupils, will preserve, we are confident, all the merit of Boston school architecture, and will exhibit not a few superior advantages. To Boston, however, our indebtedness is not confined. To Chicago, we owe mainly the course of study that has been used here during the past two years. The few alterations made in that course, were suggested by our local experience, supplemented by New York and Boston school practice. The regulations of our schools, plans of classification, examination, and promotion of pupils, do not differ essentially from those adopted by the best regulated school departments of the Eastern States.

Our school system was inaugurated under the most favorable auspices. Its founders were men of liberal culture, zealous in the cause of education and familiar with the public school systems of New England.

Started under these fortunate circumstances, and aided constantly by the matured and costly experience of other school departments, it is not strange that the career of our schools, during the twelve years of their existence, should have been distinguished for its sure and rapid progress.

That their future advancement will continue unabated, we have reason to believe, from the higher standard of scholarship evinced at each later examination of the schools; the regularity with which the pupils are promoted from class to class; the increasing attendance upon the schools, which are yearly supplied with greater conveniences, more improved furniture, apparatus, charts, etc., and, finally, from the increasing proportion of well qualified teachers engaged in the schools.

And whilst within the schools the evidences of healthy progress and successful improvement are abundant, in the outward circumstances of the schools, sure signs of prosperity are not wanting.

All claims against the School Fund have been paid at maturity; and notwithstanding the unprecedented expenses incurred last year for building, furniture and supplies, the City Treasurer reported, at the close of the year, a cash balance in the School Fund of $24,935, or a true balance of $12,040 69, assuming payment of all outstanding demands.

The financial prospects for the present school year, are most cheering to all who "fail not to recognize in our free public schools, that solid foundation upon which alone a public State can be erected, secure against any and every storm that may assail it from without."

SCHOOL FINANCES.

The entire school revenue of the last fiscal year, was $214,463 03, as reported by the City Treasurer. To this amount should be added $22,505 84, the balance of the previous year's fund, which will make a total of $236,968 87.

The school tax for 1863-64, was fixed at twenty cents on the $100. Had thirty-five cents been levied, as was allowed by law, the school fund would have been increased $82,500 00, or, deducting the $60,000 transferred from the General Fund into the School Fund, in consideration of the reduction of the school tax, this Department would have realized $22,000 additional.

In this transaction, the Board were influenced partly by a peculiar force of circumstances, but mostly by a regard for the wishes and demands of their fellow citizens, who were becoming unusually restive under, what seemed a few years ago, an insupportable burden of federal, state and city taxation. Our generous public, in cheerfully consenting this year to the full rate of school tax, and in soliciting the Legislature for an unconditional appropriation of $60,000 from the Municipal funds to the school treasury, manifested a proper appreciation of the public spirit of the Board.

As occasion sometimes requires that the revenue of the School Department should be estimated, in order that its expenditures may be properly adjusted and judiciously made, it may not be useless to submit some facts in relation to the subject.

The Legislature of 1863, authorized the Board of Education "To determine the amount of taxation, not exceeding 35 cents on each $100's valuation upon the assessment roll, to be raised by tax upon the real and personal property within the city and county, not exempt from taxation, for the establishment and support of Free Public Schools therein."

To levy and collect the amount of tax so determined by the Board of Education, is made the duty of the Board of Supervisors. Prior to 1863, the question was raised whether or not the Board of Supervisors were required to levy and collect whatever school tax the Board of Education might fix within the limit of the 35 cents. The conflict between the two Boards, on this subject, cannot occur again, whilst the revised school law continues in force.

The school revenue from poll taxes is variable: in 1862, it reached the sum of $6,222 75; last year it declined to $3,726.

When a poll tax becomes delinquent, one dollar is added, of which when paid, 75 cents passes into the School Fund. Therefore, it results, that the fewer the delinquent poll taxes, the smaller the school profit.

During the past three years, the Board have collected rents from the tenements on 50-vara 301, and ground rent from the frame building on 50-vara 1023. This source of revenue might readily be sustained and materially increased by leasing the Market street frontage of 100-vara lot 128, for a ten years' lease of which $36,000 was not long since offered.

The revenue attainable from the sale of unoccupied school lots is small. The only school sites unnecessarily large, are the two 100-vara lots 128 and 174; whilst there are a few other smaller lots, some occupied, and others not, that are unfit for school sites. From the sale of a portion of this property, the Department might realize, in case of urgent necessity, a large amount of funds. The sale of lot 345 was considered judicious, inasmuch as the location was too inaccessible for children, and apart from the cost of partially grading the street in front, $6,054, other unavoidable expenses of grading would have nearly doubled the market value of the lot.

The State School Fund, which is apportioned semi-annually, is considered as a fixed source of revenue to the schools, although the Legislature of 1862, having failed to discharge its obligations to this fund, the schools did not, that year, receive any of the State funds, to which, by the laws of Congress they were entitled.

This fund was created by the sale of the 500,000 acres of land granted to this State by Act of Congress in 1852. An additional grant of the 13th and 36th sections in each township, was made by Congress in 1853.

The proceeds of these sales have all been diverted from their legitimate purpose. The fund has a recognized, not an actual existence: its recognition is manifested, when the Legislature pays the interest due on the amount of the school-land sales. This payment can never be less than that of last year, $27,912; and as the sales of the school-lands increase, it must increase in like ratio.

The last Legislature, in answer to numerous petitions from all parts of the State, created a State School Fund, by levying a

half mill tax on all real and personal property within the State. This new levy will yield in this County about $30,000, of which, about 17,000 will be appropriated to our schools, whilst the remainder will be bestowed on school districts less favored than our own.

According to the best means of information at command, the school revenue for the present fiscal year will be made up as follows:

Taxes on real and personal property	$213,000
Poll taxes	3,500
State apportionment—School Land Fund	30,000
State ½ mill School tax	17,000
Rent of School property	1,500
Balance of School funds, special, June 30th, 1864.	60,000
	$325,000

The value of the real estate on which taxes are collectable, is estimated by the City Auditor and the Tax Collector, at $60,000,000. The taxes on personal property have already been paid, to such an extent, as to make the revenue from this source unquestionable.

The school expenditures of the past fiscal year amounted to $228,411 94, making an excess of $49,582 47, over those of the previous year. This excess includes $12,285 04 paid for street work in front of school property, an expense not formerly charged to the school fund; and the further sum of $19,395 49, by which the expenditures made last year for the purchase of school sites and the erection and repairs of school buildings, exceeded those of like kind made the previous year. The remainder of the excess above given, $17,901 94, is found in the following items: teacher's salaries, $4,435 09; insurance, $307 69; Industrial School appropriation, $1,800; furniture, janitors' and carpenters' wages, etc., $11,359 16. The ordinary current expenditures of last year, which alone should be taken into account, in comparing the financial operations of successive school administrations, show an increase of $16,542 58 over those of the year preceding.

The increase in the amount paid teachers is very small, considering the fact, that fourteen additional teachers were employed last year. That the amount was not larger, is attributable solely to the employment of so many pupil teachers, whose salary was only fifty per cent. of that paid to other teachers filling the same position. The saving thus secured could not have been less than $5,000.

The janitorial account must necessarily enlarge as the school accommodations become more extended. The wages of these and of other laborers in the Department have not been raised; but the number of employés has been increased. Insurance on all the school buildings has been effected with the various "Home Companies;" their policies foot up $82,950

The furniture with which the schools have been supplied of late years, is of the most durable kind. The pupils' desks are single and made of hard wood; the standards, of cast iron. The cost of a desk and chair complete, as named in the last furniture contract awarded by the Board, is $6 50. The economy as well as the superior merit of the improved style of school furniture have been fully demonstrated both in this city and elsewhere. As far as I have been able to ascertain, after making a detailed catalogue of the furniture in all the schools, and computing the cost, the Department has expended in this direction, since 1854, not less than $32,000, and including charts, apparatus, and other school appliances, not less than $50,000.

Table No. III, in the Appendix, shows the quantity, quality and cost of the furniture and apparatus in the various schools.

The item "books and supplies," found under the head of current expenditures, (Table No. II), signifies, text books purchased for indigent pupils, ink, charts, stationery, crayon, stoves and all other articles, except text books, which are indispensable to the school-room; with such requisites, the pupils of the public schools are supplied gratuitously.

The rent account increased considerably last year, and it will not show any diminution this fiscal year. In certain portions

of the city, where the schools fail, for lack of room, to receive all who apply for admission, it has been necessary for the Board to rent houses and rooms for school purposes, in order that the disappointed applicants might not be entirely deprived of public school privileges.

The account of "Incidentals" is much larger than heretofore: its principal items are: Legal expenses, $410; extra janitorial services, $211; School census, $158; expenses of the Board, $90.

The Industrial School Board obtained legislative authority to draw annually from the school fund, $2,400, or $1,800 more than the law previously allowed for the salaries of teachers employed in that school.

The value of this institution to society, and especially to our other schools, from which it wards off many a dangerous influence, is properly recognized by the Board of Education.

The removal of the remains of Mr. T. J. Nevins, from Nevada Territory to this city, was authorized by the Legislature. Such an act was but a fitting tribute to the merit of a faithful public servant, as the early history of our public schools proves Mr. Nevins to have been.

The expense of grading and otherwise improving streets in front of school property, $12,285, was not under the control of the Board, as has been previously stated. The $25,260, applied to the redemption of the school bonds and of the High School mortgage and payment of interest thereon, is another heavy expense entailed on the Department.

These bonds were issued in 1854, 1860 and 1861, and from the proceeds of their sale, funds were procured in those years for the erection of school-houses.

There was in the Treasury, to the credit of the School Bond Fund, June 30th, 1864, $34,265 52, which deducted from the amount of bonds unredeemed, $121,500, will leave $78,234 38; and this remainder, plus the balance due on the High School mortgage, $2,666, will represent the entire indebtedness of the Department at the close of the fiscal year 1863-64.

The large expenditures made both this and the previous year for repairs of school buildings, afford no flattering commentary upon the character and stability of our school-houses. By dint of repairs and additions, some of these houses are made to serve satisfactorily for school purposes, whilst others, despite the continued improvements placed on them, are still devoid of the most essential qualities of a proper school-house.

During the year, three buildings have been erected; one on Broadway, for colored children; one on Utah street, San Bruno road, and another on the corner of Bush and Taylor streets.

The lot on which the Colored school stands, has 69¾ feet on Broadway, and a depth of 91⅔ feet. The lot cost $6,000.

The building is framed and one storied, and is divided into two recitation rooms, each 28 feet by 32 feet, with ceilings 15 feet in the clear. Separate halls and clothes rooms are provided for each sex. The building is well lighted and ventilated, and its exterior is not unattractive.

The building and fencing cost $4,435, and the furniture, which is of the improved style, $498.

The colored children richly deserve their present comfortable and neat school-house, after having endured unmurmuringly, for many years, their former squalid, dark and unhealthy quarters.

The school-house on San Bruno road is 46 feet long and 29⅓ feet wide. A hall, 12 feet wide, extends across the rear, in which there are separate entrances for the sexes, and clothes rooms for each. The lot is 100 by 200 feet, and was donated to the Department by George Treat, Esq. The building and improvements cost $3,517.

DENMAN GRAMMAR SCHOOL-HOUSE.

This brick building occupies a lot of 137½ feet square, and fronting on Bush and Taylor streets. The lot cost $11,800. The building was completed at a cost of $52,864, including the fees of the architect, Wm. Craine, Esq., to whom I am indebted for the following description: The plan of the building

is a parallelogram of ninety-eight and a half feet by sixty-one feet, having its entrance on the long sides in projecting portions, each twenty-nine feet by three and a half feet.

The building is three stories high, the first being 13¼ feet, and the second and third stories, each 15 feet high.

It has a Mansard roof, surmounted with a cupola and surrounded with a balustrade, to the top of which the projecting portions are carried up perpendicularly from the bottom, thus increasing the interior accommodation of the attic, which is twelve feet high, and contains sixteen Luthern windows in its inclined sides, and six in the said projecting portions of the two fronts, which together with the advantages arising from its superior location, renders it available and very pleasant for school purposes.

The distribution of the first, second and third stories is uniform, each containing four school-rooms of twenty-eight by thirty-four feet; four wardrobe rooms of six and a half by twenty and a half feet; two teachers' rooms of six and a half by nine feet, and a hall eleven feet wide through the centre of the building, transversally, with easy spacious stairways at each end, which extend to the attic.

The attic contains two recitation rooms, each twenty-seven by thirty-three and a half feet, and an assembly room capable of accommodating the entire school.

The ingress and egress are rendered safe and convenient by means of four spacious doorways, one in front, and three in the rear; the interior is well lighted and ventilated throughout.

Fresh air is introduced through apertures near the floor, and regulated by registers, while the vitiated air is allowed to escape through ventilators near the ceiling.

All the wardrobe rooms are supplied with marble top washstands and water; the windows have inside folding blinds. The exterior has an expressive, pleasing and ornamental appearance. It is finished with cement, painted and sanded to a light color, which gives it an air of cheerfulness.

The yards are enclosed in front with a brick wall and neat fence; while the play-grounds in the rear are surrounded by a

high enclosure, which separates the scholars from the streets and adjoining property.

This noble structure and permanent monument to the cause of education, is an honor to our city.

SCHOOL CENSUS.

According to the reports of the Census Marshals presented last August, there were in this city 30,879 white persons under 21 years of age; 18,748 between 4 and 18 years, and 10,974 under 4 years. The entire population under 21 years, including children of African, Mongolian and Indian origin respectively, was 31,637.

By Act of the Legislature, Negroes, Mongolians and Indians are excluded from the Public Schools, although the penalty for admitting them to the schools of the whites, has recently been abolished, and more ample provision has been made for their education in separate schools.

The total of white children under 21 years returned by the census one year ago was 26,904, less by 3,975 than the number reported this year.

The State School Fund is apportioned according to the number of white youths between 4 and 18 years. The last apportionment was $1 72 per capita; at a like rate, the city will receive this year $32,246 56, exclusive of the further benefit to be derived from the State School Tax of one half mill.

The Public School attendance given in the census coincides very nearly with that reported last month by the teachers, whose registers showed an actual attendance or average enrollment of 6,477 pupils.

The Private School attendance gained 271 during the year, whilst the Public Schools show for the same period a gain of 1,406.

In 1860, there were in this city 15,116 youths under 21 years, of whom 8,890 were born in California; to-day, there are 30,879 under 21 years, of whom 18,748 are native born.

Thus it will be seen that the juvenile population of the city has more than doubled during the past four years, and the same remark applies to the children born in this State. With these statistics before us, we cannot but rejoice at the speedy approach of the time, when the majority of our citizens, prompted by devotion to this their native State, and surrounded by the hallowed associations of their birth-place, shall secure for California a more stable and a more contented population; a people in whose manners, customs and pursuits shall be intensified the hardihood, liberality, enterprise and patriotism of the American settlers of this coast. But vain will be our hopes of a bright future for this favored State, if these 18,000 native Californians be denied the advantages of a sound education, or they be warped or injured in their moral, physical or intellectual development. Should this native population continue to double every four years, as heretofore, during the next decade, it is rational to suppose that the controlling element of our society in 1874 will be the not less than 100,000 citizens and youths who shall claim San Francisco as their native city.

To this rising generation, the future destiny of this city is to be mainly committed—that it may not be inglorious, the interests of these youths must be tenderly fostered and carefully guarded against the corrupting influences that here assail them.

SCHOOLS AND TEACHERS.

The Public Schools of this city are classified as follows: One High School for Boys; one Girls' High School; six Grammar Schools; fifteen Primary Schools; four Evening Schools of one class each; one Normal School for Teachers of the Department; one School for colored children, and one Chinese School. During the year one Girls' High School, and five additional Primary Schools have been established.

Our system of instruction contemplates a period of eight years for its completion, or in other words, it presupposes that a child who enters the Primary Department at the age of six years, will by semi-annual promotion complete the primary

course in three years, and passing regularly through the Grammar grades in the four years ensuing, he will enter the High School at the age of thirteen, and graduate thence when he shall have attained the age of sixteen. The course of study in use does not differ perceptibly from that of the best regulated and most successful schools of the Eastern States, and as by law all teachers are subjected to a rigid test of their qualifications, before their employment, our citizens may have a well founded assurance that no pains have been spared to render the instruction imparted to their children in the Public Schools, thorough, practical and sufficiently comprehensive.

The whole number of teachers employed in the Department at the close of the City School year, April 30, 1864, was 102, of whom 18 were males and 84 females. Of this corps, 97 were engaged in regular class instruction, and five in attending generally to the special branches, writing, drawing, music, and physical training.

The increase for the year in the number of teachers employed was fourteen; since the commencement of the May term, twenty-four additional teachers have been elected, making an aggregate of 126.

The completion of the school buildings before described, has greatly and suddenly enlarged the school accomodations of this city, whilst temporary school-rooms have been fitted up in rented houses, and thus our school facilities have been further extended. The last census returns as well as the school registers, show an increase of over 1,400 pupils in the school attendance. It is undoubtedly apparent that the Board have, to the extent of the means at their disposal, supplied the educational facilities so greatly needed in this city. Their further supply in certain localities, destitute of schools, is as much desired by the Board of Education as by the people, and if the latter will but contribute to the School Fund for several years longer, as liberally as heretofore, there will soon be no cause for complaint on the part of parents who apply unsuccessfully for the admission of their children to the Public Schools. In establishing schools, although the first requisite is

funds for building, yet no secondary importance attaches to the location best adapted to the purposes of the school proposed, nor to the plan, size and materials of the house to be built. That these particulars merit the close attention of all school officers, is abundantly proved by the blunders made from time to time by successive Boards of Education, in their real estate and building operations. So long as one-half or six members of the Board are elected annually, and the new members, who are of necessity unacquainted with our school matters or at least with the penetralia of the Department, do not hesitate to embark in enterprises both new and dangerous to schools, so long will such blunders be made even by those who are the most sedulous to avoid them.

The following summary exhibits the school attendance for the past five years:

School Years.	Whole number enrolled.	Average Number belonging.	Average daily attendance.	Per cent of attendance.
1860	6,108	not reported	2,837	83
1861	6,617	" "	3,377	90
1862	8,204	4,303	3,794	90
1863	8,177	4,681	4,389	91
1864	10,983	5,911	5,470	92

The average number of pupils belonging to all the schools represents the true school attendance. According to the Teachers' Registers, the gain made last year in the attendance was 1,230 pupils; according to the late school census, the increase was 1,406.

During the past four years, the number of children reported in the daily attendance of the schools has nearly doubled. Another instance of equal rapidity in the expansion of its school system can scarcely be shown by any other city in the Union.

The cost of instruction last year was $126,285, or $21 per pupil.

In Boston, the rate of tuition per scholar, last year, was $15 77; in Chicago, $13 55, and in Cincinnati, $12 15.

Our public schools are undoubtedly an expensive institution, but that the expense of their establishment and support is more than counterbalanced by the good results achieved solely through their agency, needs no demonstration for any intelligent citizen of a free State.

If our schools had no other merit than the pure patriotic spirit of their pupils, imbibed from singing national songs, they would still be worthy of public support.

On this subject, the Hon. John Swett, State Superintendent of Public Instruction, uses the following language:

"When the people of other States, staggering under taxation, their sources of prosperity dried up, their able-bodied laborers more than decimated by the calls of the army—when they declare that not a dollar less shall be raised for Schools, that not a School-house shall be closed—shall California, of all the States, alone shrink back from the duty of educating her children! Shall all our inexhaustible resources of mineral wealth be expended on 'feet,' and the brains of the children be left undeveloped? Shall millions be expended in constructing a Pacific Railroad, and the State fail to lay the solid foundations of character and intelligence on which rest the permanent prosperity of the generation which will reap the benefits of that great highway of the world? Shall we make every sacrifice of men and money to maintain the Union for a generation unfitted, through want of education, to appreciate either our sacrifices, or the value of the inheritance we leave them?

"The real wealth of the State lies, not in mines of silver, or gold, or copper; not in productive fields and fertile valleys; but in her educated men and intelligent free laborers. Educated mind has made the world rich by its creative power. The intelligent minds which have invented the hundreds of labor-saving machines in every department of industry, have created a wealth greater than the total product of the mines of Mexico, California and Australia combined. All these inventions were once dim ideas in the busy brains of educated men—ignorance found out none of them."

NUMBER OF CLASSES AND THEIR SEVERAL GRADES.

SCHOOLS.	First Grade.	Second Grade.	Third Grade	Fourth Grade.	Fifth Grade.	Sixth Grade.	Seventh Grade.	Eighth Grade.	Ninth Grade.	Tenth Grade.	Classes having one grade.	Classes having two grades.	Classes having three grades.	Number Promoted. April Examination.
Union Street	1	1	1	2	1	1	1	1	1	2	12	..	..	345
Mason Street	1	2	1	3	..	..	..	..	..	..	7	..	..	262
Denman School	1	1	2	5	1	..	..	..	..	..	10	..	..	267
Rincon School	1	1	2	3	2	1	..	..	..	..	10	..	..	400
Mission School	1	1	1	1	1	1	1	2	1	1	1	5	..	173
Spring Valley School	1	1	..	1	1	..	1	1	1	1	..	3	1	126
PRIMARY SCHOOLS.														
Greenwich Street	..	..	..	..	1	1	1	1	1	1	6	..	..	37
Powell Street	..	..	..	..	1	1	2	2	1	1	8	..	..	279
Hyde Street	..	..	..	..	..	1	1	1	1	1	3	1	..	153
Sutter Street	..	..	..	..	1	1	1	..	..	1	4	..	..	96
Market Street	..	..	..	..	1	2	1	1	2	1	8	..	..	345
Model School	..	..	..	..	..	1	..	1	1	2	..	1	1	65
Second Street	..	..	..	..	..	1	1	1	..	2	3	1	..	....
Clary Street	..	..	..	..	1	2	2	2	1	2	10	..	..	317
Eighth Street	..	..	..	..	..	..	..	..	1	1	..	..	1	....
Montgomery Street	..	..	..	..	..	1	1	2	1	1	2	2	..	101
Colored School	..	..	..	..	1	1	..	1	1	1	..	1	..	62
Chinese School	..	..	..	..	..	..	..	..	..	1	1	..	..	....
Totals	6	7	7	15	12	15	13	16	13	19	85	14	3	3628

At the close of the last school year, the Primary Schools numbered sixteen and comprised seventy classes, which were divided into six grades, as is shown by the preceding table.

Of these classes, fifty-seven were each composed of one grade, or were fully graded; eleven had two grades each, and three had three grades.

The advantages of having all the pupils of a class or division occupy one room, use the same text books, and recite to a special teacher, are very apparent to those who were accustomed, before the existence of Graded Schools, to teach a single branch to all the classes of a school. Our present plan of classification with its accompanying graded course of study, provides six primary grades or classes and precisely fifty pupils as the maximum attendance for each class. Our graded system of classification and course of study accord with those adopted in the best schools in the country, and after two years' trial we can endorse their merit. In regard to the course of study, I am happy to state that the difficulty at first experienced by many of the teachers in making themselves familiar with some topics peculiar to the course, and skilful in using the methods which are essential to the systematic and successful treatment of these subjects, has, to a great degree, disappeared.

The difficulty alluded to attaches to the oral instruction prescribed for the several classes, in imparting which successfully the teacher is required to employ tact in illustration and skill in the use of appropriate object apparatus.

The value of primary instruction is greatly enhanced by the fact that a majority of children leave school at so early an age that their knowledge of books seldom extends beyond the rudiments of arithmetic, reading, spelling and writing, which form the main studies in Primary schools. The information thus obtained is generally so meagre and so confused and distorted by the undeveloped faculties of this class of untutored children, that even if it be retained, it seldom avails them much in after life. On this subject I find the following in the last New York School Report:

"Thousands have been withrawn on account of the necessities of their parents, before they had passed through all of the classes even of the primary department. Painful it was to hear that so large a number of our youth are deprived of the blessings of such an education as the Grammar Schools afford to all who punctually attend them, and that their pecuniary necessities are so pressing that they must engage in the stern duties of life with minds so imperfectly cultivated. The instruction of the Primaries should therefore be, if possible, more thorough than it has ever been, and no effort should be spared to develop and cultivate faculties upon which the future hopes of so many depend. A systematic course of instruction, founded upon the most approved methods, by teachers thoroughly trained for the work, would, indeed, prove a partial remedy for the evils alluded to."

Yet, not alone for the children thus early deprived of the means of education would I claim that the Primary Schools should receive the most favorable consideration of your Board, but in behalf of those who are permitted to enter the Grammar Schools. For it is universally true that the real progress in learning made by Grammar pupils can be gauged by the thoroughness of their preparatory or primary training and instruction.

Although great improvements have been made in the gradation of the Primaries, and notwithstanding the successful labors in this direction made by my predecessors, and the Committee on Classification, vigorous efforts must yet be put forth to bring these schools up to the high standard of excellence attained by the Primary Schools of several other cities.

For these, complete success should be aimed at, even though the schools of higher grade suffer in consequence, and the justification of such a policy will be found in the democratic adage—"The greatest good to the greatest number." Viewed in this light, it will be admitted that the Primary Schools constitute the most important department of a system of public schools.

That the great mass of children who enjoy the benefits of public instruction are found in these schools, is evident from the fact that in all our large cities a greater number of teachers find employment in the Primaries than in the schools of superior grade. In New York, Cincinnati and Chicago, the attendance in the former, compared with that of the Grammar and the High schools, is generally in the proportion of two to one.

In New York, the average attendance last year in the Primary Schools and departments was 44,602 pupils, whilst the number in the other schools was but 24,145.

Admitting that the public good requires that the Primary Schools should be provided with the best and most ample educational facilities, the conclusion is inevitable that in every school department, these schools should rank first in regard to the character of their teachers, their buildings and their other appliances of education. Such an enviable distinction as this cannot be claimed for our Primaries, except in these respects, viz: that they are generally placed in charge of the ablest and most experienced teachers; and that so far as it has been possible, these schools have been supplied with appropriate furniture and apparatus. As regards the convenience, attractiveness and size of their buildings and premises, these schools compare most unfavorably with our higher schools.

The external advantages enjoyed by the latter are, by no means, counterbalanced by a superior quality of instruction imparted in the Primaries. For it has been the practice of our Board to set the lowest standard of qualifications for teaching in these schools, and also, to frequently employ therein young and inexperienced teachers. Although the occasional necessity of employing this class of teachers must be conceded, yet, I am convinced that they should not begin their apprenticeship in the infant or 9th and 10th grade classes. My views on this subject are expressed by N. A. Calkins, Esq., who says: "None but teachers of known experience and special fitness, or of thorough special training for the work, should be placed in charge of the lowest classes of the primary grades. It is in

these classes that children receive their first impressions of school and of learning; and often these impressions are such as to leave undeveloped any love for learning, and even to forever banish all desire for gaining an education in school."

Next in importance to the judicious selection of Primary teachers, is the work of examining, classifying and promoting pupils. The labor involved in the proper and systematic discharge of this work, which has hitherto been performed by the Committee on Classification and myself, has been very arduous, but inasmuch as nearly all our schools are now well organized, it would, perhaps, be advantageous to allow the details of the work to be performed by the Grammar Masters. In other school departments it is almost a universal custom to require the Masters to examine and promote the pupils of all the classes in their schools, except those under their immediate care and instruction. The examination of the schools made by Committees or Superintendents, and the strict supervision exercised by these school officers over the Masters' performance of the duties specified, are regarded merely as auxiliary means for carrying out successfully the vast undertaking, where the school organization is extensive, of grading, examining and promoting pupils. To enable our Grammar Masters to properly perform the additional duties alluded to, provision must first be made for the care of their classes as often as they shall find it necessary to visit the other classes assigned to their charge. In the preceding table a summary is given of the promotions made in each school at the close of the last school year. The promotions made in the Primary Schools at the semi-annual examination in November, and the occasional promotions made during the year in the Grammar schools, are embraced in the table. The practice of the Committee on Classification in not favoring promotions of pupils, except after the stated examinations, has proved beneficial, and it can be made more advantageous still, if the Board will decide in some appropriate manner, that there is no surer evidence of the success of any teacher than the fact that all her pupils have been promoted at the required time.

When our Primary School accommodations shall have been made as complete and convenient as the new Grammar buildings afford, and the school improvements I have described shall have been secured, our Primaries will satisfy the public demand and will justify the highest encomiums of our school system.

GRAMMAR SCHOOLS.

Annual Examination of the First Grammar Grades.

SCHOOLS.	Average in each study.					General average.	Admitted on scholarship.	Admitted on scholarship & deportment.	Total admitted.
	Arithmetic.	Grammar.	Geography.	History.	Spelling.				
Union Street	.64	.56	.60	.78	.44	.60*	23	2	25
Mason Street	.46	.62	.52	.76	.38	.54*	15	14	29
Bush Street	.28	.45	.29	.49	.40	.38*	4	7	11
Rincon	.48	.62	.59	.84	.56	.61*	....	....	....
" (re-examination)	.31	.62	.63	.62	.60	.55*	28	5	33
Mission	.49	.49	.39	.62	.51	.50	3	3	5
Spring Valley	.44	.40	.39	.71	.51	.49*	2	2	5

The six Grammar Schools of the city comprise thirty-five classes, which are divided into four grades. Twenty-eight of the classes are graded, and the remainder, consisting of two grades each, are but partially graded. The system on which our system of grading is based is, that a Grammar School house should contain at least four classes or grades, each having a special teacher, a consecutive and well defined course of study, and as an average attendance, forty-five pupils. Provision is made by means of annual examinations and promotions for the completion of the course of study in four years, and for subsequent admission to the High Schools.

In four of the schools, where the system has been found practicable, all the pupils of a class use the same text books and study the same subjects, and in most instances, study and recite the same daily lessons. In the latter case, the class is said to be of one division, although in some of their studies, the pupils are usually divided for convenience of recitation.

Such a class as this presents the most perfect form of our graded system. There are at present seventy classes of this description. It is not incompatible with this system, however, that a class should have two divisions of pupils, who not being equal in attainments cannot recite in common; provided all of them are engaged on the same prescribed course of study. Accordingly, a graded class admits of two divisions of a single grade, but not two distinct grades.

A class of this character is usually obtained in our schools by promoting at a stated time from duplicate classes of the next lower grade. In the Boston schools the classes are made so far as it is possible, of one grade; in the Chicago schools, on the contrary, there are in each Grammar class two grades, and in each of the 5th, 6th, 7th and 8th grade classes, there are three divisions, and in those of the 9th and 10th grades four divisions. Our terms, class and divisions are the equivalents of the Boston designations, school and class, and of the Chicago terms, division and class. The latter nomenclature, which is the reverse of ours, is in most general use, and should, therefore, have our sanction. Superintendent Wells recommends that each class in the Grammar Department should not number more than 20 or 25 pupils, and each class in the lower grades, not more than 10 or 15 pupils. The object here proposed is, that whilst one class (one division) is reciting, the remaining class or classes may have time for study, and that each pupil may thus receive the individual attention of his teacher.

The advantages of having a division of pupils recite by classes or sections are undoubtedly great, but the benefit thus secured is lessened, if the classes are unequally graded, as in that case, occasion is seldom offered to the teacher by the dif-

fering courses of study assigned to the several grades, to teach the pupils simultaneously.

Our Grammar schools are in excellent condition, yet their efficiency can be increased by providing better facilities for the examination of pupils and classes with reference to their promotion. It is impossible for any Committee of the Board to perform this task satisfactorily, without the aid of teachers, and therefore, other school boards now universally entrust this matter mainly to the teachers, reserving only the right to examine the classes of the highest grade and to supervise the promotions made in other classes. The greatest improvement, however, of which all our large schools, with a single exception—the Denman School—are susceptible, is a provision for thorough and practical supervision of their classes by the Grammar Masters. In New York, the Masters are entirely relieved of the charge of any one class, so that they may attend to the general interests of the school; and in Boston, the Master has a special assistant who has charge of the school records and of the Masters' division when the supervision of the lower divisions renders his absence necessary. Our Grammar Masters are expected to prepare annually a class of forty pupils for promotion to the High Schools, and still find time to superintend the instruction given in all the classes of the school and attend to all matters of discipline. The masters realizing the impossibility of performing all these duties, attend to the wants of their own class, settle all cases of discipline for the school, and then, having but little or no leisure, they often per force leave their assistants dependent on their individual resources. Another improvement, although not at present possible for us, would be the removal of the Primary Schools from the buildings occupied by Grammar pupils. The recesses of the two schools occur at different times, and the Primary concert recitations and other exercises are a frequent source of annoyance to the upper classes.

The result of the recent examination of the Grammar divisions, exhibited in the preceding table, are in the main favor-

able. The written examination of these and of the lower Grammar divisions showed plainly that spelling and writing have not received in the schools that attention which their practical importance demands. The oral examination, it is gratifying to state, gave evidence that teachers had not underrated the value of the new course of oral instruction, for which we are indebted to the Chicago Schools.

The last written examination for promotion to the High School, was carried on simultaneously in the six classes of the first Grammar grade, by and under the direction of the Examining Committee. It occupied three days, and was attended by much unnecessary labor and confusion, which could have been easily obviated by assembling in one building all the pupils who were to be examined.

BOYS' HIGH SCHOOL.

This school, which is situated near the corner of Clay and Powell streets, was instituted in 1864; the design at that time being to furnish the youth of the city, who had enjoyed the usual advantages of the public schools, with the means of completing a good English education. At the commencement of the present school year, May, 1864, this School was re-organized. The most important changes effected, were the appointment of an entire corps of male teachers, the addition of the Greek and Latin languages to the course of study, and the exclusion of the female pupils, for whom a separate building had been provided.

Classical study was introduced to satisfy a demand, often expressed in the community, for the means of preparing young men to enter college. To facilitate this design, the students are allowed to confine their attention to such studies as will best prepare them to enter upon a collegiate course of instruction.

The departments of study now established, includes Mathematics, Natural Sciences, and Ancient and Modern Languages.

Much attention is also given to the study of the English language, and provision is made for the establishment of a department of *Belles Lettres*.

The scientific course, which embraces Mineralogy, Assaying, Surveying, Mathematics and Natural Sciences, is comprehensive and practical; its interest and importance being greatly increased, by the valuable mathematical and philosophical apparatus recently purchased for the institutiou.

This apparatus, which cost $1334, in gold coin, was selected by Mr. Sherwin, Principal of the English High School of Boston, and will shortly be placed in a large hall, to be fitted up as a lecture-room and laboratory.

To Mr. George W. Minns, Principal of our High School, the Department is greatly indebted for his zealous efforts in procuring this apparatus. As its name imports, this institution is a free academy, and not a college; and if it shall afford the youth of this city an education as thorough and as liberal as that obtainable in the High Schools of Boston and Philadelphia, it will have accomplished its mission. With such a school in our midst, there no longer exists a necessity that parents should, at a pecuniary loss, send their children out of the State, to be prepared for creditable matriculation at Harvard or Yale.

But, not alone to those who desire to enter the learned professions, does this school offer excellent opportunities for instruction; to the student fitting for commercial pursuits, the mathematical and scientific course, supplemented by modern languages, presents adequate facilities for special preparation.

Against this school, objections have sometimes been urged, on account of the difficulty experienced by many applicants in securing admission.

That many candidates from both public and private schools, are rejected every year is true; but it is equally true that the failure of these is attributable, in nearly every case, to their ignorance of those fundamental branches of learning, which fall within the province of Grammar School instruction. To lower the standard of qualifications for admission, to the reach

of scholars not disciplined by study, nor adequately versed in the principles of arithmetic and grammar, would render impracticable the improved course of study recently introduced into the High School.

In one respect, however, these objections were well founded, viz.: among the rejected applicants, there have been a few for whom the High School building afforded no seats, until greater accommodations were made by assigning a separate building to the female pupils.

The seating capacity of the present schoolhouse, retained for the exclusive use of boys, is 150, as may be inferred from the following statistics of last year's attendance:

Number enrolled	230
Average number belonging	112
Average daily attendance	107
Per centage of attendance	95

Taking the average number belonging, as the proper basis of calculation, the cost of tuition per scholar was $60.

At the close of the fourth year of the course, January 14th, 1864, the members of the first class were subjected to a written examination, as a test of their ability and preparation to graduate. The graduating exercises of the class were held in the Unitarian Church, Stockton Street, at which a large audience was assembled, to witness the literary and musical performance of the pupils, and to hear the addresses to the graduates delivered by Hon. John Swett, Superintendent of Public Instruction, and the Hon. E. D. Sawyer, by whom diplomas were presented to the following:

GRADUATES, 1863-4.

Misses.

Fannie M. Cheeney,	Theresa Buckham,
Katie B. Childs,	Mary Goldsmith,
Anna Barnard,	Albertine Plummer,
Clara A. Cummings,	Mary Frances Knowles,
Philena S. Sawyer,	Agnes Chalmers,
Jane Smith,	Georgiana O. Cofran,

Margaret Wade.

Masters.

William F. King, George M. Ciprico,
William Hale, Jr., Forrest H. Willey,
Charles S. Tilton.

The graduates of the previous year, were:

Misses.

Lizzie B. Easton, Kate S. Herrick,
Fannie M. Bird, Lizzie F. Hitchings,
Anna B. Chalmers, Alice M. Marshal,
Hannah F. Dam, Jessie Smith,
Kate Dennis, Emma E. Williams,
Jennie E. Gunn, Georgiana Lamb,
Nettie M. Chadbourne, Anna M. Hucks,
J. V. Barkley.

Masters.

Francis J. J. Leonard, George T. Lyle,
Edward H. Morgan, I. W. Palmer,
George P. Rogers, James E. Wolfe,
F. A. C. Dorland.

EVENING SCHOOLS.

During the year, four classes, with an aggregate attendance of 110 pupils, were continued in session from September to May. In the Principal's class, where the members are mostly over eighteen years of age, book-keeping was the most prominent study; in another class, composed of men and youths of foreign birth, reading, spelling and translating from French, Spanish and German, occupied attention; in the remaining classes, the pupils, who varied in age from eight to sixteen years, devoted themselves to the branches taught in primary schools.

At no former period have these scholars exhibited such good order, so regular and punctual attendance, and such zeal for knowledge.

The funds appropriated to these schools are trifling, when compared with the great benefits bestowed, through their agency, on many deserving young men whose indigent circumstances have deprived them of other means of education. And when to these we add the pupils of foreign birth, who are here taught to speak and write our language, the policy of improving the condition of the evening schools and widening the sphere of their usefulness becomes very apparent.

The charge for the tuition of each person over eighteen years of age, was reduced, last year, from $2 to $1 a month, inasmuch as the payment of the former rate taxed not a few too heavily.

The chief defects of these schools are the lack of classification and systematic supervision, caused by the classes occupying different and in some instances, widely separate buildings.

Were two conveniently located schoolhouses, situated respectively north and south of Market Street, appropriated to the accommodation of all the evening classes, the pupils could then be easily classified and instructed according to the system of the day schools.

Until this change can be effected, it would be beneficial, perhaps, to allow the Principal time to inspect each class several times each month; to keep a monthly or general record of the classes, and to examine and classify all applicants.

After nine years' existence, our evening schools have attained to the dignity of a permanent institution, and it will not, therefore, be regarded as ill-timed to enquire if the advantages of evening instruction should not be extended to females as freely and as fully as to the male sex.

In the large cities of the Atlantic States, no such distinction as here exists is recognized; each sex has its separate schools, and all are well attended. For instance, in New York, the attendance at the female schools, in 1863, was 3,485.

SCHOOL FOR COLORED CHILDREN.

The new house occupied by this School, stands on Broadway, near Powell street; it has two large and well furnished class-rooms, and two convenient yards for the different sexes.

The attendance for the past year, was as follows; number of pupils enrolled, 138; average number belonging, 65; daily average, 58,

During two months of the year, whilst the school remained in the basement of the African Church, but one teacher was employed; since then, two teachers have been engaged, and the daily average attendance has been 79·1.

In respect to classification, which has been improved by the organization of a primary class, the school has made considerable progress; but in regard to the instruction and mental discipline afforded here, no particular merit can be claimed; for if the proficiency in knowledge and mental training displayed by pupils, is a reliable index to the character of any school, and the attainments of these colored children are to be measured by the standard of scholarship required of our other schools, this one will, I am sorry to say, suffer by the comparison.

As but one school is open to all the children of our colored people, among whom are found not a few heavy tax-payers, it would seem but just that this school, of all others, should have the services of teachers thoroughly educated, and chosen with special reference to the requirements of the school.

CHINESE SCHOOL.

This School, although small, deserves notice, if not for the good results manifested, at least to express our admiration of the philanthropy which suggested its organization.

If missionaries after a life-long devotion to the spiritual regeneration of this unprogressive and unimpressible race, show but little fruit of their exhaustive labor, surely no sudden or extensive progress of American ideas can distinguish the only

Chinese public school-house outside of the Celestial Kingdom. Regarded from this stand point, this school should be famous, even though its habitat is only a gloomy basement of the Chinese Chapel, whose obscure walls, are nevertheless not repugnant to Mongolian tastes and habits.

For one not acquainted with the Chinese language, or population, it is difficult to note the progress made from year to year, by the school, and hence, we can only infer from the increasing attendance that the advantages of the school are becoming better known and appreciated by the Chinese, and that therefore the school is doing its peculiar work not ineffectually.

The attendance for the last year was: number enrolled, 119; average number belonging, 33. It has been difficult for the teacher of this school, to secure the punctual attendance of his pupils, simply because most of them have daily labor to perform and can devote only their spare time to study.

As an instance of their zeal for knowledge, the teacher states that eleven of his pupils have copied an English and Chinese dictionary, from one prepared by himself—a task requiring ten hours of daily labor for three months for its completion.

He, also, remarks, that the Chinese do not approve of any change in school books, for in China, every schoolboy begins his studies with the "Three First Books." which have been in the schools already three thousand years!

According to a recent legislative report, relative to the Chinese population, it appears that during the fiscal year 1861, the Chinese of this State, expended in that year for customs taxes, and general business purposes, nearly $14,000,000.

As often as the propriety and justice of supporting this school are questioned, the facts above stated should be duly considered and placed to the credit of the school.

Before closing this report, it will not be inappropriate to speak of certain matters, which have had, at different times, the careful consideration of the Board. And as these matters are widely different in their nature, although affecting commonly the welfare of the Department, I may, perhaps, be allowed to discuss them in a desultory manner.

The subject of schoolhouses, their proper location, number, architecture and cost, has frequently led to protracted discussion both in the community and elsewhere. Without entering into the merits of this controversy, I am persuaded that argument sufficient can be drawn from the experience of our local Boards of Education, to support the following general policy of building operations; At the beginning of the fiscal year, the amount of funds that can be applied, during the year, to the erection of houses, should be ascertained by a careful calculation of all the current, fixed and contingent expenses of the schools. Afterwards determine the proper number, capacity and location of the buildings, and remembering the democratic axiom, "The greatest good to the greatest number," then proceed to erect the cheapest houses first.

The demand for more primary schoolhouses in various parts of the city, is very urgent; and now that the Denman, the Lincoln Grammar, and the Girls' High School buildings have relieved the pressure for admission to the upper grades, this demand should be satisfied as soon as possible.

So far as my knowledge of school architecture extends, the most approved plan for a brick schoolhouse, such as is required within the fire limits, is two stories and a basement sufficiently lighted for playgrounds, furnaces and janitor's rooms. In the second story, or else in the attic, provision should be made for the assemblage of the school. In the outskirts of the city, where ample ground can be procured at moderate cost, the school sites should be large enough to admit of a one story and basement building of any capacity required. The lots reserved in the Van Ness Ordinance for school sites, are 137½ feet square: they should have a frontage of 175 feet, a space barely sufficient to allow the free passage of light and sunshine to a house which may in process of time have 500 or 600 inmates. In regard to the proper dimensions and arrangements of class-rooms, halls, &c., the new schoolhouses of Boston, New York, and, we may now add, those of San Francisco, will supply all the information needed.

The desire manifested by the Board to erect schoolhouses, such as the Denman and the Lincoln, which shall be commensurate with the wealth and intelligence of our citizens, is commended by those who feel sincere pride in the expansion and improvement of the public school system; and yet our citizens generally, would have been better satisfied than appearances indicate, had the Board built two or three Primary buildings before erecting or completing the Lincoln schoolhouse. The substitution of hot-air furnaces for stoves, in our new buildings, will be found beneficial and economical; and the introduction of the system of ventilation in vogue at the East, is worthy of consideration.

The second topic to which I would direct your attention, is the irregular length of the school terms, in consequence of which the labors of the teachers and their pupils are not well distributed throughout the year. The chief objections to the present arrangement are first: That the last term of four months is too long, and, again, that the close of the half school year, when the semi-annual examination and promotions in the Primaries take place, occurs about four weeks before the end of the middle or second term. The knowledge obtained by the children during these few weeks, they have been on a new course of study, is generally dissipated by the pleasures of the ensuing Christmas vacation, which lasts three weeks.

The school year should begin with the fiscal year, in July; and it might be conveniently divided into two principal terms; the first, to terminate with the vacation at Christmas; the second, with a vacation of at least four weeks, in June. A recess of one week in the middle of each term, would afford the schools sufficient respite, until the long vacation should occur. The yearly school session should not exceed forty-two weeks, exclusive of holidays and vacations.

During the past year, the departments of writing, music and physical culture, have given employment to five special teachers, whose aggregate salaries amount annually to $6000.

The schools have been under regular musical instruction six

years, a period sufficient to enable the pupils to become familiar with the rudiments of music.

The reports of the teachers and of the Committee on Music, speak favorably of the progress of the schools in this popular branch of study, which at first was regarded as merely a source of entertainment for the children, but is now systematically taught as an important element of a good education. Before the commencement of the present school year, the teachers of music gave lessons to an entire department of a school, simultaneously; now, however, instruction is given by classes, which is a far more effective method of teaching than the collective plan. Under the present arrangement, music should be made the subject for an annual examination of the schools. In all the Grammar Schools, and in most of the Primaries, there are pianos which afford an admirable accompaniment to the vocal and physical exercises of the scholars. The instruments that belong to the Department, have been purchased at various times by the teachers, from the avails of their school exhibitions and May parties; the rented pianos are furnished by the Board, at an annual rental that would suffice to purchase at least two superior instruments, every year. Economy will justify such an investment of the school funds, in all cases where pianos are regarded as a legitimate appliance of education.

To Burgess' system of penmanship, used in the schools, the testimony of teachers is generally unfavorable. Unless this system be altered, as was recently proposed by the author, it should be discontinued.

The Principals agree in the opinion that writing can be more effectually taught by the teachers of the several classes, than by a writing-master, who having to instruct, perhaps, a thousand pupils, can bestow but little attention or time to the individuals of any class.

Our two writing-masters have been diligent and successful in their extensive labors, but their task is too onerous to be performed as fully as the requirements of the schools demand.

The most serious evil resulting from the employment of special teachers of writing is, that many of the regular instructors of the schools, relying mainly on the former for the instruction of their classes, fail to interest their pupils in the writing exercises. The experience of other school departments, in this matter, accords with our own; whence there is good reason for doubting the utility of thus committing this important branch of learning to the charge of a few special instructors.

The employment of a teacher of Calisthenics, has so far resulted profitably, inasmuch as it gave an impetus to the physical training of the schools, awakened both teachers and pupils to the vital importance of the subject, and systematized the crude efforts previously made for the physical development of the young.

But now that the schools have had the benefit of a year's drill, and that physical culture is so fully appreciated by parents, and so elaborately explained and illustrated in the works of Dr. Lewis, Watson, and others, there is no reason apparent why our teachers, already well versed in this science, should not alone conduct the calisthenic exercises prescribed for their respective classes.

Reluctantly I approach a theme which has long occasioned warm discussion among prominent educators and others alike distinguished for learning and philanthropy.

When such a general diversity of opinion and sentiment exists, in regard to this subject, the appropriate education of the sexes, that you shall often find two neighboring communities, or two cities of the same state, and both equally noted for intellectual and religious progress, where the sexes are taught, in one place separately, and in the other jointly, it would be a vain attempt for me, in this matter, to harmonize the views and disarm the prejudices of our heterogeneous population. The difference in the educational policy of the principal cities of the Union, in regard to the sexes, may be learned from the following facts; In Chicago and Buffalo, no distinction of sex is observed in the organization of the schools,

not even in High Schools; in New York and Brooklyn, the schools are divided into male and female departments, which occupy different floors of the same building: in the schools of Cincinnati, the sexes are divided by classes or grades.

In Boston there are twenty Grammar schools, of which seven are exclusively for boys, seven for girls, and six for both boys and girls.

In Europe, the sexes are almost universally taught apart, the most common exception being in the infant or primary schools.

In this city, no distinction of sex was made in the organization and classification of schools, until last May, when the Board formed the present Boys' High and the Girls' High Schools, from the school formerly attended by both boys and girls. The object of this change was to provide for each sex a course of study especially adapted to its peculiar wants and its respective social condition. Hence the study of ancient languages, the higher mathematics and of mineralogy and assaying, was assigned to the Boys' School and excluded from the Girls' High School.

In the late report of the Cincinnati Schools, may be found a recommendation for a similar change in the High School studies, and made for the reasons we have assigned.

Another, and the only remaining instance of a separate education of the sexes in our schools, is found in the Denman School, where the boys and the girls are taught in separate class-rooms. The design of this arrangement was to gradually prepare for the withdrawal of one sex from the school, which could be conveniently done, it was supposed, by removing the boys to the Lincoln Schoolhouse, when it should have been completed. Inasmuch as the building will be ready for occupancy at the close of this school year, it will be necessary for your Board to determine shortly, whether this design shall be carried out. Our practice of educating the sexes together is commended by the highest educational authority of our country, and by the school customs of a majority of our free States. This plan of education is peculiarly American, and as such, it

appeals strongly to our national prejudices. Wherefore, it behooves your Board to weigh this matter well, and should you desire to alter the relations existing between the sexes in the schools, to assign good reasons for the change. For my own part, although my predilections for the theory which favors the joint education of the sexes, oppose any change in our school organization, yet I am persuaded that a proper deference to the wishes of a large and respectable portion of our fellow citizens demands that some of the grammar schools should be devoted to the exclusive use of girls. It is useless to combat the prejudices of such people; among whom, generally, we find persons of wealth and, mostly, those of foreign birth: unless their wishes be gratified they will continue to patronize private schools, which already have an attendance of 4,823 pupils. No other city in the Union has such a heterogeneous population as ours; hence, what would be beneficial in the school system of an old, stable community, may not be equally efficacious here. The public schools are designed for all classes of society; and it is plainly to the interest of democratic institutions that these schools should be patronized by the rich and the poor, the native and the foreign born, and by all these without distinction of number or merit. Such an extensive patronage as this is enjoyed by the public schools of Boston, where there are schools provided for the sexes, jointly and separately. The policy of Boston is well adapted to our present emergency, and in imitation of it, I trust your Board will complete its design of limiting the attendance at the Denman School to girls.

The last topic to which I would call the serious attention of your Board, is the introduction of the Bible into the schools, so far as to allow the morning exercises of the schools to commence with the reading of a portion of the Scriptures by the teachers. To prevent any abuse of this privilege by teachers of sectarian views, certain restrictions might be imposed upon the reading; as, for instance, that it should be without note or comment, and that the reading should be discontinued or not allowed in any class where this religious exercise should create discord between the pupils or their parents and the teacher.

I am convinced that most of our teachers would make the reading of some appropriate selection from the Scriptures, as a few verses of the Psalms or Proverbs, an invaluable auxiliary in the moral education of their pupils, and that the latter would derive from this reading a becoming reverence for the Word of God and its holy teachings, and a proper sense of their personal and their social duties and obligations.

In the schools of New York, Cincinnati, Boston and Chicago, and in every other city on the continent where public schools exist, so far as my knowledge extends, the daily reading of the Bible by the teachers is compulsory.

The New York rule reads as follows:

"All the Public Schools of this city, under the jurisdiction of the Board of Education, shall be opened by the reading of a portion of the Holy Scriptures, without note or comment."

The Cincinnati rule is as follows:

"The opening exercises in every Department shall commence by reading a portion of the Bible, by, or under the direction of the teacher, and appropriate singing by the pupils.

"The pupils of the Common Schools may read such version of the Sacred Scriptures as their parents or guardians may prefer, provided that such preference of any version, except the one now in use, be communicated by the parents or guardians to the Principal Teachers, and that no notes or marginal readings be read in the Schools, or comments made by the Teachers on the text of any version that is or may be introduced."

In 1851, the Board of Education of this city adopted the following resolution:

"*Resolved*, that the schools be closed each day with prayer, and that on Monday forenoon of each week there be an exercise in reading the Scriptures."

When or why this rule or resolution was rescinded, I have not been able to ascertain; and, in fact, I do not know that it was ever annulled, although it may be so inferred, since the use of the Scriptures in the schools has not been known for many years.

Either of the rules above quoted is adapted to the subject-matter, and I should not recommend modifying either so that the reading of the Bible should not be compulsory, as I have previously stated, were this community ripe for the innovation proposed.

The exclusion of the Bible from our schools is a slur on religion and the character of our community, which may have been compatible with the manners and morals of the first California adventurers, but is hardly consonant with the social and political progress to which San Francisco has now attained, and for which she enjoys so fair a fame among her sister cities.

The adoption of either of these rules, even though modified so as to silence many objections which would otherwise assail the measure, may yet subject your Board to the calumny and detraction of noisy demagogues and religious fanatics. That the teachers will experience any difficulty from the rule, I do not apprehend, for we have too many proofs of their sound discretion and their upright and intelligent discharge of duty, to warrant such an apprehension.

In regard to this matter, I am convinced by my intimate knowledge of the motives which have always actuated your official conduct, that you will seek the welfare of our schools, unbiased by an unworthy desire of public favor, or by any undue fear of popular clamor.

Respectfully submitted,

GEORGE TAIT,

Sup't of Public Schools.

BOARD OF EDUCATION—1864–'65.

M. LYNCH,.....*President.*
L. B. Mastick.....1st District
John F. Pope.....2d District
Washington Ayer.....3d District
George B. Hitchcock.....4th District
W. A. Grover.....5th District
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William G. Badger.....7th District
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L. B. Thompson.....9th District
J. H. Widber.....10th District
M. Lynch.....11th District
Abner Doble.....12th District

GEORGE TAIT, *Sup't Public Schools.*

DANIEL LUNT, *Secretary.*

TABLE I.—COMPARISON OF SCHOOL EXPENDITURES FROM 1857 TO 1864.

Financial Year.	Salaries of Teachers	Schoolhouses and Sites.	Sinking Fund and Interest.	General Expenses.	Total.
1857–'58,	$62,300 13	$21,000 36	$ 9,331 25	$17,176 69	$109,800 43
1858–'59,	73,559 12	12,800 82	9,382 11	15,958 50	111,700 55
1859–'60,	74,476 75	39,981 05	12,188 95	19,428 25	152,985 00
1860–'61,	72,656 94	67,906 60	22,059 22	24,341 42	186,964 18
1861–'62,	77,787 77	12,811 10	27,131 66	16,837 82	134,568 35
1862–'63,	86,282 71	42,134 71	24,953 08	25,458 97	178,929 47
1863–'64,	90,717 80	73,815 17	25,260 77	36,218 13	228,411 87

The above table shows that the School Expenditures of last year exceeded those of any former fiscal year, whilst for the two preceding years, 1863 and 1862, they were less than those of 1861 and 1860. The explanation of this may be found by referring to the column of "Schoolhouses and Sites," where it will be seen that in 1860, 1861 and 1864, the building operations of the Department were unprecedently large and expensive.

TABLE II.—CURRENT EXPENSES—FISCAL YEAR 1863-'64.

Teachers' Salaries		$90,717 80
Janitors' Salaries		6,262 08
Clerk's Salary		1,500 00
Carpenters' Salaries		1,820 00
Census Marshals		640 00
Insurance		1,226 25
Lights		357 98
Water		222 00
Furniture		11,195 21
Books and Supplies		2,781 34
Rents		6,100 32
Fuel		1,282 92
Incidentals		1,955 03
Apparatus		225 00
	$126,285 93	
Teacher of Industrial School	2,400 00	
Removal of Col. Nevins' remains, [Statute of 1863]	650 00	
Total		$129,335 93

BUILDING AND FUND ACCOUNTS—1863-64.

Grading and Fencing		$6,230 51
Repairs of Schoolhouses		12,060 03
Building		41,970 10
Purchase of lot on Broadway		6,000 00
High School Mortgage and Interest		1,733 33
Interest on School Bonds		11,027 44
Sinking Fund—Redemption of School Bonds		12,500 00
Commissions of Architect		1,500 00
Grading lot 345 (front of)		6,054 53
Total		$99,075 94

TABLE No. III.—DESCRIPTION AND ESTIMATED VALUE OF SCHOOLHOUSES, LOTS, AND FURNITURE.

SCHOOLS.	When erected.	Size of Lot.	Size of Building.	Num. of wings.	Size of wings.	Num. of seats.	Num. of stories.	Num. of rooms.	Patent single desks.	Double desks.	Num. of primary seats.	Num. of recitation benches.	Value of Lot.	Cost of building.	Cost of Furniture.
Boys' High	1860	69¾x137½	32x88	...	.....	93	2	5	93	...	...	44	$ 12,575	$ 14,487	$ 2,809
Girls' High	1854	137½x137½	30x70	...	.....	118	2	4	118	...	...	14	10,000	11,300	1,650
Union Street	1854	137½x137½	46x99	2	9x24¾	708	2	9	168	98	344	62	20,396	31,321	2,958
Mason "	1861	137½x137½	62½x81½	1	8½x22	386	2	7	228	79	...	52	10,690	17,823	2,785
Bush "	1864	137½x137½	61x98¼	2	3½x29	644	3	15	644	...	...	153	11,800	52,864	5,216
Rincon	1861	100x180	50x50	...	.....	533	3	10	483	25	...	3	7,000	10,565	3,806
Mission	1860	200x182	61⅔x62½	1	10x31	358	2	6	168	...	192	14	1,350	11,483	1,789
Spring Valley	1857	137½x137½	44½x83	...	.....	228	1	4	18	47	116	18	1,000	4,825	820
Greenwich Street	...	137½x137½	63x58	...	.....	371	2	6	53	37	244	31	6,000	5,000	1,205
Powell "	1851	68¾x137½	27x80½	...	.....	488	2	8	112	124	128	32	7,000	3,185	1,956
Hyde "	1857	97½x137½	37x97	...	.....	244	1	4	60	31	122	24	2,000	3,700	1,102
Sutter "	...	42x150	42x25	...	.....	216	2	4	...	88	...	22	.....	.....	1,063
Market "	1861	100x190	50x50	2	18x25	410	2	8	118	82	128	17	12,000	9,799	1,780
Montgomery "	...	.....	.....	...	.....	230	1	4	...	25	180	...	.....	.....	468
Second "	...	60x137½	.....	...	.....	256	1	4	...	...	256	1	.....	.....	345
Third "	...	.....	.....	...	.....	228	1	3	...	20	188	...	.....	.....	594
Fourth "	1863	78⅔x159	30x72	1	35x40	564	2	10	50	47	420	3	50,000	5,190	1,377
Eighth "	...	40x80	30x30	...	.....	64	1	1	...	...	64	3	.....	.....	105
Model School	...	.....	70x60	...	.....	128	1	3	...	...	128	6	.....	.....	203
Hayes Valley	1862	137½x137½	27⅓x71⅓	...	.....	124	1	2	60	...	64	14	3,500	4,130	627
San Bruno	1864	100x200	29⅓x46	...	.....	120	1	2	...	...	...	...	1,000	3,517	.....
Chinese	...	.....	.....	...	.....	48	1	1	...	24	...	...	.....	.....	166
Colored	1864	69¾x91⅔	30½x76½	...	.....	116	1	2	52	...	64	6	6,000	4,435	498
State Normal	....	80x80	80x60	...	.....	178	1	4	98	40	...	7	.....	.....	1,320
Fifth and Market St.	1865	175x175	63½x141½	2	18x33	900	3	18	...	...	...	...	25,000	81,000	.....
TOTALS						8153		144	2523	747	2638	526	$187,311	$274,624	$37,235

TABLE IV.—ESTIMATE OF EXPENDITURES—1864-65.

CURRENT EXPENDITURES.

Teachers' Salaries	$133,000 00	
Janitors' Salaries	3,500 00	
Carpenters' Salaries	2,400 00	
Clerk's Salary	1,500 00	
Census Marshals	670 00	
Insurance	1,300 00	
Lights	400 00	
Water	300 00	
Furniture	12,000 00	
Books and Supplies for Schools	3,500 00	
Printing and Stationery for Board	500 00	
Rents	9,500 00	
Fuel	1,600 00	
Incidentals	2,000 00	
Philosophical Apparatus	1,700 00	
		$178,870 00

BUILDING AND FUND ACCOUNTS.

Grading and Fencing	$10,000 00	
Industrial School	2,400 00	
High School Mortgage	1,753 33	
Sinking Fund—redemption of School Bonds	12,500 00	
Interest on Bonds	10,800 00	
Purchase of Lot on Tehama Street	9,500 00	
Contract—School House, Fifth Street	$1,000 00	
Contract—School House, Potrero St.	2,150 00	
Contract—School House, San Bruno Street	3,480 00	
Architects' Fees	4,000 00	
Alterations & repairs, Schoolhouses	10,000 00	147,653 33
Total		$326,523 33

SUMMARY

OF

TEACHERS' ANNUAL REPORTS

OF THE SCHOOL ATTENDANCE.

TABLE V.—SCHOOL YEAR ENDING AUGUST 31st, 1864.

SCHOOLS.	Whole number of Boys enrolled.	Whole number of Girls enrolled.	Total enrolled.	Average number belonging.	Average daily attendance.	Per cent. of attendance.	Number of classes in School.
High	...	...	230	112	107	·957	4
Union Grammar	214	142	358	198	189	·954	5
Union Primary	390	353	743	383	366	·955	7
Mason Street Grammar	298	313	611	350	330	·942	7
Bush " "	364	500	864	597	547	·914	12
Rincon " "	523	524	1047	603	560	·925	12
Mission " "	344	365	709	332	307	·924	6
Spring Valley "	205	148	353	219	194	·885	4
Greenwich St. Primary	292	255	547	291	278	·951	6
Powell Street Primary	391	375	766	506	456	·901	8
Hyde " "	244	200	444	238	220	·924	4
Sutter " "	225	259	484	223	207	·928	4
Market " "	502	398	900	452	421	·931	8
Fourth " "	627	483	1110	562	526	·953	10
Second " "	138	141	279	251	242	·964	4
Montgomery St. "	202	188	390	202	191	·945	4
Hayes Valley "	40	39	79	51	48	·941	2
Eighth Street "	51	39	90	64	60	·945	1
Model School	...	...	304	179	133	·743	2
Colored "	74	64	138	65	58	·892	2
Chinese "	...	...	119	33	30	·909	1
Evening "	418	...	418	...	...	...	4
Totals	5542	4786	10,983	5911	5470	925	117

TABLE No. VI.—SCHOOL CENSUS TAKEN AUGUST, 1864.

DISTRICTS.	Number of Boys between 4 and 18 years of age.	Number of Girls between 4 and 18 years of age.	Total number of White Children between 4 and 18 years of age.	Number of White Children under 4 years of age.	Number of White Children between 18 and 21 years of age.	Number of White Children under 21, born in Cal.	Number of Children between 4 and 6 years of age.	No. of Children between 4 and 6 years of age attending Private Schools.	Total number of Children reported as attending Public Schools.	Total number of Children reported attending Private Schools	Number of Children between 6 and 8 years of age not attending any School.	No. of Indian Children between 4 and 18 years of age	No. Mongolian Children between 4 and 18 years of age	No. of Negro Children between 4 and 18 years of age.	No. Deaf & Dumb children between 4 and 18 years of age	Number of blind children between 14 and 18 yrs. of age.	Total Number of white children under 21 years of age.
First District.	673	649	1322	874	36	1476	163	25	487	286	208	2	1	10		2	2,232
Second "	1120	1096	2216	1304	122	2293	472	96	903	608	247		5	65			3,642
Third "																	
Fourth "																	
Fifth "	1848	1909	3757	1814	448	3199	566	90	1239	951	515	13	390	144	1	1	6,019
Sixth "																	
Seventh "	931	946	1877	1235	192	1794	415	46	648	523	337	7	12	4		1	3,304
Eight "	1208	1198	2406	1523	94	2638	455	13	832	663	322	5	2	11		1	4,023
Ninth "	590	663	1253	784	103	1282	338	47	377	363	202	11	11	2			2,140
Tenth "	1519	1591	3110	1830	65	2927	708	93	1103	888	402	5	11	10	2		5,005
Eleventh "	761	803	1564	968	58	1655	355	42	527	382	253	6		3	25	19	2,590
Twelfth "	622	620	1243	642	39	1057	275	8	445	159	167	1		9			1,924
Totals...	9273	9475	18,748	10,974	1157	18,321	3747	454	6561	4823	2653	55	434	269	28	25	30,879

Total of all the races named.....31,637

TABLE VII.—SALARIES OF TEACHERS—1864-'65.

BOYS' HIGH SCHOOL.

One Principal	(male)	$2,500 00
One Teacher of Mathematics	"	2,400 00
One Teacher of Classics	"	2,400 00

GIRLS' HIGH SCHOOL.

One Principal	(male)	$2,500 00
Two Assistants,	(female) each	1,200 00
One Teacher of Modern Languages	"	1,800 00

GRAMMAR SCHOOLS.

Six Grammar Masters,	each	$2,100 00
One Sub.-Master		1,500 00
Four First Assistants,	(female) each	960 00
Four Special Assistants,	" "	870 00
Fifteen Assistants,	" "	810 00
Three Pupil Teachers,	" "	500 00

PRIMARY SCHOOLS.

One Principal	(male)	$1,500 00
Five Principals,	(female) each	1,020 00
Five First Assistants,	" "	870 00
Forty Assistants,	" "	810 00
Fourteen Pupil Teachers,	" "	500 00
One Principal of Modern School	"	960 00
One Teacher of Chinese School	(male)	960 00
One Teacher of Colored School,	"	1,050 00
One Teacher of Eighth Street School	"	840 00
One Principal of Hayes Valley School	"	960 00
One Principal of Montgomery Street School	"	900 00
One Principal of Second Street School	"	900 00
One Principal of Third Street School	"	870 00

One Principal of Evening School, (male) $75 per month.
Three Assistant Teachers of Evening School, each, $62 50 per month.

Two Music Teachers,..... (male) each $150 00
Two Teachers of Penmanship,..... " ... " 150 00
One Teacher of Calisthenics & Gymnastics (male), $175 for three months.

Total number of Teachers,.....122

TABLE VIII.—NUMBER AND LOCATION OF SCHOOLS.

Girls' High School.....Corner of Bush and Stockton Streets
Boys' High School .....Powell Street, near Clay
City Normal School .....Powell Street, near Clay

GRAMMAR SCHOOLS.

No. 1.—Union street, near Montgomery.
" 2.—Corner of Mason and Washington streets.
" 3.—Corner of Bush and Taylor streets.
" 4.—Vassar Place, Harrison street, between 2d and 3d.
" 5.—Mission street, between Fifteenth and Sixteenth.
" 6.—Spring Valley, between Franklin and Gough streets.

PRIMARY SCHOOLS.

No. 1.—Union street, near Montgomery.
" 2.—Greenwich street, near Taylor.
" 3.—Powell street, near Jackson.
" 4.—Bush street, near Hyde.
" 5.—Sutter street, near Kearny.
" 6.—Market street, near Fifth.
" 7.—Vassar Place, Harrison street, between 2d and 3d.
" 8.—Corner of Fourth and Clary streets.
" 9.—Grove street, near Larkin.
" 10.—Montgomery street, between Pacific and Broadway
" 11.—Corner of Mission and Second streets.
" 12.—Eight street, near Harrison.
" 13.—Third street, near Harrison.

Chinese School—Corner of Sacramento and Stockton streets.
Colored School—Broadway street, between Powell and Mason
Model School—Fourth street, near Jessie.
State Normal School—Post street, near Kearny.

SCHOOLS AND TEACHERS.

1.

BOYS' HIGH SCHOOL, (Southwest corner of Powell and Clay streets.)

Mr. G. W. Minns,...*Principal, and Teacher of Natural Sciences*
Mr. T. Bradley,.....*Teacher of Mathematics*
Mr. G. W. Bunnell,.....*Teacher of Ancient Languages*

2.

GIRLS' HIGH SCHOOL, (corner of Bush and Stockton streets.)

Mr. E. H. Holmes,.....*Principal*
Miss M. S. Bodwell,.....*Assistant*
Miss M. F. Austin,.....*Assistant*
Mme. V. Brisac,.....*Teacher of Modern Languages*

3.

UNION STREET GRAMMAR SCHOOL.

Mr. T. S. Myrick,.....*Principal*
Miss M. R. Warren,.....*Special Assistant*
Miss L. Kennedy,.....*First Assistant*
Miss S. A. Jessup,.....*Assistant*
Miss E. M. Tibbey,.....*Assistant*
Miss E. M. Bullene,.....*Assistant*
Miss A. F. Aldrich,.....*Assistant*
Miss H. A. Grant,.....*Assistant*
Mrs. A. Griffith,.....*Assistant*
Miss S. S. Sherman,.....*Pupil Teacher*
Miss C. Cummings,.....*Pupil Teacher*
Miss Ellen Grant,.....*Pupil Teacher*

4.

MASON GRAMMAR SCHOOL.

Mr. James Stratton,.....*Principal*
Miss D. S. Prescott,.....*First Assistant*
Miss S. S. Knapp,.....*Special Assistant*
Miss H. F. Richardson,.....*Assistant*

Miss S. J. White,.....*Assistant*
Miss F. A. Stowell,.....*Assistant*
Miss G. Price,.....*Assistant*

5.

BUSH AND TAYLOR STREET SCHOOL.

Mr. James Denman,.....*Principal*
Mrs. L. A. Morgan,.....*First Assistant*
Miss L. E. Field,.....*Special Assistant*
Mrs. M. J. Warren,.....*Assistant*
Miss E. M. Tiebout,.....*Assistant*
Mrs. F. E. Reynolds,.....*Assistant*
Miss E. A. Shaw,.....*Assistant*
Miss J. B. Burrell.....*Assistant*
Mrs. H. P. Gates,.....*Assistant*
Miss C. A. Sherman,.....*Assistant*
Mr. J. G. Hoitt,.....*Sub.-Master*

6.

RINCON GRAMMAR SCHOOL.

Mr. J. C. Pelton,.....*Principal*
Miss C. V. Benjamin.....*First Assistant*
Miss H. Thompson.....*Special Assistant*
Miss M. E. A. Phillips,.....*Assistant*
Miss Francis Lynch,.....*Assistant*
Miss M. E. Stowell,.....*Assistant*
Mrs. M. S. P. Nichols,.....*Assistant*
Miss L. F. Hitchings,.....*Assistant*
Miss S. L. Hobart,.....*Pupil Teacher*
Miss M. Wade.....*Pupil Teacher*

7.

MISSION STREET SCHOOL.

Mr. T. C. Leonard.....*Principal*
Miss A. A. Rowe.....*First Assistant*
Miss A. A. Hill,.....*Assistant*
Miss Jessie Smith,.....*Assistant*
Miss N. M. Chadbourne,.....*Assistant*
Miss L. S. Swain,.....*Pupil Teacher*

8.

SPRING VALLEY SCHOOL.

Mr. B. Marks,.....*Principal*
Miss H. A. Haneke,.....*First Assistant*
Miss M. A. Buffum,.....*Assistant*
Miss Josephine Barkley,.....*Pupil Teacher*

9.

THIRD STREET SCHOOL.

Miss P. M. Stowell,.....
Miss Lizzie Jewett,.....

10.

GREENWICH STREET PRIMARY SCHOOL.

Miss Kate Kennedy.....*Principal*
Miss C. M. Pattee,.....*Assistant*
Miss M. Keith,.....*Assistant*
Miss S. M. Scotchler,.....*Assistant*
Miss L. B. Easton,.....*Pupil Teacher*
Miss A. Chalmers,.....*Pupil Teacher*

11.

POWELL STREET PRIMARY SCHOOL.

Miss M. E. Clark,.....*Principal*
Miss E. S. Forrester,.....*First Assistant*
Miss H. A. Bowers,.....*Assistant*
Miss E. T. Snow,.....*Assistant*
Miss S. E. Thurton,.....*Assistant*
Miss C. A. Coffin,.....*Assistant*
Mrs. M. W. Phelps,.....*Assistant*
Miss M. J. Richie,.....*Pupil Teacher*

12.

HYDE STREET PRIMARY SCHOOL.

Miss Alice Bunnell,.....*Principal*
Miss L. A. Humphreys,.....*Assistant*
Miss L. A. Pritchard,.....*Assistant*
Miss A. B. Chalmers,.....*Pupil Teacher*

13.

SUTTER STREET PRIMARY SCHOOL.

Miss A. E. Du Bois.....Principal
Miss C. L. Hunt.....Assistant
Miss J. M. A. Hurley.....Assistant
Miss L. A. Hardy.....Pupil Teacher

14.

FIFTH AND MARKET STREET PRIMARY SCHOOL.

Mrs. C. H. Stout.....Principal
Mrs. P. C. Cook.....First Assistant
Mrs. M. T. Kimball.....Assistant
Miss N. Stuyvesant.....Assistant
Miss M. E. Very.....Assistant
Miss A. Kenny.....Assistant
Miss L. Smith.....Assistant
Miss M. A. Humphreys.....Assistant

15.

FIFTH AND CLARY STREET PRIMARY SCHOOL.

Mr. A. E. McGlynn.....Principal
Miss A. Lender.....First Assistant
Miss J. Hamblen.....Assistant
Miss S. G. Barker.....Assistant
Miss E. Overend.....Assistant
Miss M. A. Salisbury.....Assistant
Miss A. E. Slavan.....Assistant
Mrs. H. E. Packer.....Assistant
Miss M. McKenzie.....Assistant
Miss Kate V. Darling.....Assistant

16.

MONTGOMERY STREET PRIMARY SCHOOL.

Miss A. S. Moses.....Principal
Miss P. A. Fink.....Assistant
Miss H. F. Parker.....Assistant
Ellen Cushing.....Assistant

17.

HAYES VALLEY PRIMARY SCHOOL.

Miss L. J. Mastick,.....*Principal*
Miss Jennie Gunn.....*Pupil Teacher*

18.

SECOND STREET PRIMARY SCHOOL.

Mrs. C. L. Atwood,.....*Principal*
Mrs. S. N. Joseph,.....*Assistant*
Miss C. E. Damon,.....*Assistant*
Miss Jennie Smith,.....*Pupil Teacher*

19.

EIGHTH STREET PRIMARY SCHOOL.

Miss May Williams,.....*Principal*

20.

FOURTH STREET MODEL SCHOOL.

Miss Kate Sullivan,.....*Principal*
Miss Mary Goldsmith,.....*Pupil Teacher*

21.

COLORED SCHOOL.

Mr. J. B. Sanderson,.....*Principal*
Miss P. Stewart,.....*Assistant*

22.

CHINESE SCHOOL.

Mr. B. Lanctot,.....*Principal*

23.

NORMAL SCHOOL.

Mr. G. W. Minns,.....*Teacher*

SPECIAL TEACHERS.

Mr. F. K. Mitchell.....*Teacher of Music*
Mr. W. Elliot,.....*Teacher of Music*
Mr. Hubert Burgess,.....*Drawing and Writing*
Mr. F. Seregni,.....*Drawing and Writing*
Mr. C. J. Robinson,.....*Calisthenics*

ADDRESS

OF THE

REV. DR. BELLOWS.

Delivered at the

Dedication of the DENMAN GRAMMAR SCHOOL, Thursday, September 22d 1864.

[PHONOGRAPHICALLY REPORTED.]

Mr. President, and Gentlemen of the Board of Education, Mr. Mayor, and Fellow-Citizens: I rejoice to be permitted to pass an hour or two of the last precious day of my stay on this coast in a scene like this; and in the participation in a pleasure so pure and so high. I feel as if that long voyage that lies between me and the Atlantic States were abolished; for I find myself, in the midst of this assembly, as it were, in old Boston again—a copy of one of her beautiful school-houses before me, and the familiar scenes around me which I have so often witnessed in the city of my boast, and pride, and birth—Boston;—for twenty-five years of life in New York have not sufficed to wean me from the maternal breast, from which I nursed the early milk of education, of liberty, of patriotism, of life. And, therefore, it is with pride and joy that I see a Boston school-house erected here in the midst of San Francisco; and not only a Boston school-house, but I see Boston men about me, and Boston children before me, and Boston ideas, and Boston hopes, and Boston patriotism, gleaming in the eyes and faces of all these youth that represent Young America and Young California. I say Boston, not because there are not other just as good parts of the country—as Cincinnati, Chicago, St. Louis, Philadelphia, or New York—but they are all represented by that word "Boston."

I do not know, young people whom I see before me, whom it is my pleasure and duty most to address, these seniors, these grave and elderly people about me [for I find that anybody in California who is over about forty years of age is a very venerable member of society], or you young folks.

I wonder if you know all the privileges and glories of your great opportunity here. I wonder if you know how many of us old fellows—for I have come to be very old here in California—father, and grand-father, and I know not but beyond that even,—I wonder if you know how some of us would like to be back where you are, and go to school as you go to school, under all the peculiar and glorious privileges that belong to your generation and your position. If there is any place in the world where children ought to go to school, and ought to love to go to school, it is here in California; for there is no place in the world where external nature, and political and social circumstances, are stimulating the human mind in such extraordinary measure and degree. And do you know, that just in proportion to the amount of motion, activity, and excitement that stimulates the mind and heart of man, is the necessity of that drill and training which can reduce these powerful instincts of human passion, human desire, human aspirations, and interests, to something like a well-regulated control? The human heart is liable to burst out here in California, in strong passion, power, and vitality, and to exhibit its purposes in larger and more tumultuous measures, than in any other place on the earth; and it is the duty of schools and churches to harness these tremendous powers, to put them into the thills, to subject them to the reins, and to obedience, that they may not run away with our social order, and hurl it into swift destruction.

And I do not think the good people of California fully appreciate the fact that they have not yet begun to know what thing California is going to be,—that they are the heirs of an old state of society. Full of the thoughts, full of the wholesome prejudices and partialities, full of the institutional tendencies,

and with all the restraints that belong to the condition of life and things in which they were educated at home, they will always remember the places from which they came. They have transplanted here their churches, and schools, and customs, and usages, and are in the enjoyment of the protection, and under the inspiration of that country which they remember.

But how is it to be with the rising generation, that "know not Joseph?" How is it to be with those that do not remember the old customs and places, and know not what their institutions were? We cannot know what the inevitable tendency of things must be when this new generation shall be left, the old generation having died off, in the full and absolute control of the future of this coast. I tell you one thing—I do not like to say it, for I do not want to abate hope, or confidence, or pride—but I tell the people of California, that in some respects they have seen their best days. I tell the people of California, that there are difficulties before their State, and before this whole Pacific Coast, of which few of them seem to be aware, or prepared for. Few here seem to me to know and appreciate the fact that the old influence will necessarily, in a large degree, die out with the generation that brought it here, and that the new generation can never be fully innoculated with those influences that are so precious, and which they have brought with them. You little know—you little know—what this coast owes to its parentage. But it is to be orphaned before a great while, and then what the orphan boy of California will do or become is a matter of the greatest uncertainty, and of the most solemn anxiety, and a matter in which every good citizen, whether in church, school, or State, ought to concern himself, with the profoundest resolution, and the devotion of all his energies, to preparing, as far as may be, a cloudless prospect for our young State. Therefore, it is, that I look upon our churches and schools and all the softening and refining influences that we can by any possible means introduce into this community, with the profoundest approbation and the most tender sympathy and love.

Now, what are you going to do, young people, with the opportunity that Divine Providence has given you to-day? I am glad to see so many girls here to-day—let me call them girls; I do not believe in young ladies until they are eighteen at least [laughter]—let me say to these girls that I rejoice to see so many of them here to-day. I am glad you are here, because I want to say a word or two to you in a fatherly way, which, though it may not be very pleasant to hear now, may at least be useful to reflect upon as you grow older. I think the girlhood of California needs especial attention and care. How delighted I was to hear our Mayor draw that important distinction between education and training—between that which goes to the formation of character, and that which goes to storing and stimulating the mind. Knowledge is a very great thing, young ladies and young people; wisdom is much greater—the wisdom to know how to live gentle, pure, useful, and religious lives; how to become good daughters, good sisters, and presently, good mothers; how to become good guides and conductors of those great interests that God have entrusted to womanhood. Now I say, and I say with regret, that there are certain tendencies in our California life—girls, I am speaking to you—certain tendencies in our California life which are not favorable to the harmonious, delicate influences of womanhood. There is a coarsening influence in your air. You know, and see, and hear much that it were well you should not. You are too eager to get forward into life; not contented enough to be little girls, or any kind of girls, but women. You press forward too eagerly and proudly into places which you ought to shrink to take. You need to cultivate, in short, more of reserve, more of that shrinking from the world, more of that delicate retirement or modesty of spirit which is the true robe and grace of womanhood. I know how it has been in this country; how woman here has had to buckle on and contend with the fierce necessities of life, and become almost a man, and to do a man's work, in a large part of the country. And if that necessity is laid upon woman, it is her duty and honor to rise to the occasion,

and do whatever Divine Providence has given her to do. But do not let us come to think that women are merely men in petticoats. Let us keep up at least the fiction that Divine Providence has assigned a different place, a different sphere, and different duties to your sex. And California needs all the tenderness, all the delicacy, all the discipline, that comes from a gentle, affectionate, reserved, modest race of young women.

I tell you this—that the domestic life of California is the most unpromising thing here; that you have not yet established it, nor even the foundations of it; that you do not yet know what the true domestic life is. And nothing in the world impresses itself upon the stranger so painfully as that one thing, that domestic life here is not yet fitly developed—is not yet upon a high plane or standard, and there is much—oh, how much!—to learn. There is one thing about your climate that is a great calamity. I suppose you think it a privilege to be able to do without fires to a considerable extent; but oh! do you reflect what it is to be without a fire on the hearth? to be without a fireside, and have no fireside habits? Do you remember all the joys connected with that sacred flame? Next to the holy flame of piety, perhaps the most precious that ever burns on any altar in the world is the flame enkindled upon the family hearth. Now you cannot change your climate, and you do not want to, I suppose; but do strive to cultivate more and more the home influence. And it falls to you, young women, more than to any one else, to do it; it is on your shoulders, girls, that the burden rests, to study what you can do to make home more happy, more sacred, more refined, more all it ought to be, and what I am sure it is in your blood to make it, if you only will.

In regard to the separation of the sexes which has been mentioned, do I understand that this is the first school in which that has been attempted in San Francisco?

Well, as one who has long been an observer in matters of education, I am glad of the experiment. I think it will succeed, and it ought to. It falls exactly into the line of my thought in regard to this community and its wants. We do not

want the sexes mixed too early in this community; we want to keep our boys and girls in separate parcels for a while, and I believe you will find great advantage in it.

It is deplorable to me to hear that there are so many children who go to neither private nor public schools. I declare, I think it would be well to have the law of Prussia enforced here, making it compulsory to send all children to school. I think an enlightened community would enforce such a law. A man has no business and no right to grow up in ignorance. If he does, he is a nuisance and a peril to society. He is a barrel of gunpowder in the midst of lucifer matches, liable to go off at any moment. Society has a right to insist that they shall not be annoyed by murderers, by drunkards, and by every other form of evil and peril that springs from ignorance, and especially by men who know nothing of the duties of citizenship, and have not intelligence enough to appreciate the value of schools, and churches, and colleges, and all the institutions of an enlightened Government. Therefore, when the Government comes to understand its duties, I believe it will, in this country at least, make it imperative upon every parent to send his children to school. I wish it were a penal offense to bring up a child in ignorance. These two thousand or more boys, now running idly about your streets—their precise number I do not know—but I know there is enough of them fill my mind with much solicitude and anxiety. As I have heard and seen them around the streets and squares, perhaps with cigars in their mouths, talking disgusting profanity and obscenity, I have said to myself, what is to become of a city in which hundreds of these "b'-hoys," as they call them in New York, are suffered to grow up in ignorance, idleness, and vice, to be hereafter let loose to undermine the foundations of social and political order?

Build school-houses, in God's name, as the greatest of all social economies. Tax your citizens, no matter how much, for education. I say every dollar a man pays for education, puts a dollar in his own pocket. It insures his house; it insures his

life; it insures his property; it is the cheapest kind of insurance he can effect. And therefore, all this idle, ridiculous talk about the cost of schools, the cost of churches, and the cost of whatever regulates, stimulates, and elevates the mind and heart of man, is the absurd and superficial gabble of persons without hearts or minds of intelligence. Let us never listen to it. I hope the Board of Education will make the ears of the city ring, if there are any complaints about the demands that may be made upon the city, for the cause of education. Not that I care much for the beauty of churches or school-houses; I care a great deal more for convenience, and ventilation, and ampleness of room, than for mere architectural beauty. Let us have them built at any rate, and then, if we can, let us beautify and adorn the temples of religion and education, for they deserve all the honors we can give them. They are the pillars of the State, and let their columns be wreathed with flowers, carved with beautiful shapes, and decorated and adorned with all that skill, and taste, and genius can impart to them. But if we cannot have the ornaments, let us have what is all-essential, room enough, air enough, light enough, and what is more important than all else, wise, earnest, apt teachers.

Let us have in our schools men and women who are apt to teach. Aptness to teach is not in proportion to knowledge, Some men are like full bottles, so filled with knowledge that you cannot get anything out of them. Aptness is the especial faculty and fitness of the teacher. I have been in colleges where, perhaps, one young man would be the only inspiring professor engaged in teaching, and all the others would be so scholastic, such mere bookworms, and so absorbed in learning, that to them teaching would be a drudgery, which they would perform in a perfunctory way, and as soon as possible retire again to their books, interested only perhaps in editing some Greek classic, or in investigating the remains of some megalonyx, or in an inquiry into some geological structure, rather than in imparting from his stores of knowledge to youthful minds. We do not want such men in our schools. We want men with

keen and cultivated intellect, and moral enthusiasm ; men who go about teaching with a perfect zest, and a full appreciation of the importance of their trust ; men with the moral and intellectual enthusiasm to elevate the children under their care, and an ability to impart what they know. Those are the qualities for teachers—always, of course, including sound morality and properly trained intellects and understandings. And I have reason to think you have many such teachers here, for I find many of our best people have come out here and engaged in the business of teaching. And as I have had occasion heretofore to observe in regard to the clerical profession, that here in California the average of clergymen seemed to be far beyond the average at home, so I am inclined to think that your teaching class here will average higher than what satisfies us at home. And so it should be, for it takes a better, wiser man to guide these tramping, rushing, vigorous steeds before me here, than to guide our own young people in the ruts already beaten, and the more plodding ways in which our people go on.

Well, here I see before me Young California. Now I leave this State, and I leave it in your hands. The succeeding generations are flowing in here, as the successive waves beat upon your Pacific Coast. This is the future. This is the tide rushing in, its waves following, rank on rank, and breaking at our feet. What is it to bring with it? This schoolhouse is dedicated by the prayers of your chaplain to the service and honor of Almighty God. It is in some sense a church ; not the church of any sect or denomination, but a church—for it includes, O how much!—of the kingdom of God. For the minds of men, and the minds of women, and the mental, and moral, and spiritual power that is wrapped up in your social organization —these are the basis on which all religion, all politics, all useful mechanic arts, and all else that is to make and to adorn the future of California must repose. The wealth of this State —I say it with literal application—is not in her mines, not in her soil, not in her commerce, not in her climate ; it is in her population. More, of all that is valuable to God and man lies

hidden in your young brains here, than was ever found, or will ever be found in the mountains, and gulches, and streams of your mineral State. And could you realize it, young people; could you realize it, every girl and boy here that hears me; could you realize that here, in your heads and your hearts, is lying in every one of you capacities of service for God and man, opportunities of enjoyment, opportunities of a greatness that shall tell on the fathomless future and through the boundless ages of eternity, Oh! how would you value this school, and these teachers, and the city that gives you this free education, and the country that protects you in the enjoyment of it!

This edifice is dedicated to Almighty God. It is dedicated to the domestic, social, and intellectual future of California. It is dedicated to our country, because the cause of freedom, the cause of political and social order, depends more on the training of your minds and hearts than upon any other one thing that could be named. I stand here, then, in the midst of the future of this State, and of this Coast, and I understand we have only the leaders of Young California here to-day; that there are three or four classes whom we have not been able to get up on this high level that you are on. You are on the mountain-top, as it were, and beneath you rest its successive strata of intelligence, promise, and youthful hope. Command the position you occupy, then, and rise a true mountain and temple of God—of holiness, of culture, of domestic fidelity, the jewel in your homes, young women, of cheering and sustaining influences to the other sex, and of docility to your teachers, and reverence for your elders, and those who lead you in sacred and divine things in other places. And may God bless you, and bring us all together in his own good time into his heavenly kingdom, where we shall be held, as you are now, strictly responsible for the manner and course of our lives, and especially for the wasted opportunities of our early days.

San Francisco. Board of Education
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REPORT

OF

SPECIAL COMMITTEE

ON EXAMINATION OF

COSMOPOLITAN SCHOOLS,

ACCOMPANIED BY A

Report of Committee on Ancient and Modern Languages,

WITH STATISTICS, ETC.

SAN FRANCISCO:
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1867.

EXAMINATION

OF THE

COSMOPOLITAN SCHOOL.

To the President and Members
of the Board of Education:

GENTLEMEN—Your committee to whom was referred the report of the special committee of citizens appointed to examine the Cosmopolitan School, beg leave to report that they have duly considered the same.

The report in question exhibits a careful and thorough examination of said school by a committee of learned and distinguished citizens, and as an able review of the character, condition, and prospects of the Cosmopolitan Schools, and of the merits of the system of instruction therein adopted, it is worthy of the careful examination of this Board, and of all citizens who are interested in the subject of education.

Your committee would also direct the attention of the Board to the annexed table of statistics relating to the Cosmopolitan Schools.

The remarkable growth and progress of these schools, as shown by said statistics, must convince the most skeptical that they meet a popular demand in this community, and that they should receive the same fostering and

judicious care which is bestowed upon other schools of the department.

Respectfully submitted,

P. B. CORNWALL,
Chairman of Com. on Ancient and Modern Languages.

The Cosmopolitan School was organized on the fifteenth of October, 1865, in a wooden building on Tehama Street, near First. The school was at that time under the principalship of Mrs. Ulrica Rendsburg; the number of pupils in attendance was at first twelve. One month later the school increased so that three teachers were necessary, there being 175 pupils enrolled. In April, 1866, the number of pupils in daily attendance was 475, divided into five classes, with an average of ninety-five pupils in each class. In July, 1866, there were in this school three grammar classes, with 158 pupils, and seven primary classes, with 352 pupils, or, in all, ten classes, with 510 pupils. At the beginning of the term, in January, 1867, the school contained four grammar classes, with 137 pupils, and six primary classes, with 548 pupils, or ten classes, with 685 pupils. The original Cosmopolitan School has now been organized into two separate schools—a grammar and a primary, the former in charge of Mr. H. N. Bolander, as Principal, and the latter under the charge of Miss M. Graf, as Primary Principal, both Principals being supported by able and efficient corps of assistants. The following will show the present condition of these schools—less than one month since the opening of the term:

COSMOPOLITAN GRAMMAR SCHOOL.

	Grade of Class.	No. of Pupils in each Class.
Prof. H. N. Bolander, Principal	1st and 2d	60
Prof. Charles Morel, Sub-master	4th	52
Miss L. T. Fowler, Head Assistant.		
Miss S. M. Gunn, Special Assistant	3d	62
Mme. Desjarlais, teacher of French and English	5th	63
Miss Emily Foster, " German " "	5th	56
Mr. A. Doulon, " "	4th	46
Miss A. H. Hammel, " English	4th	34
Total number of pupils		373

COSMOPOLITAN PRIMARY SCHOOL.

	Grade of Class.	No. of Pupils in each Class.
Miss M. Graf, Principal, and teacher of English and German	5th	60
Miss J. C. Haehnlen, teacher of German and English	6th	57
Miss Lizzie York, teacher of German and English	7th	78
Miss V. Coulon, " " "	6th and 7th	54
Mrs. K. McLaughlin, " " "	8th and 9th	62
Miss E. Siegemann, " German	8th	64
Miss E. Dames, " French and German	10th	66
Miss C. E. Campbell, " English	8th	66
Miss Sarah Miller, " "	9th	67
Miss Amelia Wells, " "	10th	56
Miss Grace Smith, " "	5th and 6th	50
Miss Helen E. Roeben, general assistant in German and English.		—
		680
7 Grammar Classes, with		373
11 Primary Classes, with		680
18		1,053

NOTE.—Since the above report was rendered to the Board of Education another school on the cosmopolitan system has been organized in the new building on Filbert Street, near Jones, embracing the various grammar and primary grades, having eleven classes, under the principalship of Miss Kate Kennedy, assisted by an appropriate corps of English, French, and German instructors.

J. C. P., *Sup't.*

EXAMINATION OF

COSMOPOLITAN SCHOOLS

BY SPECIAL COMMITTEE.

Report addressed to the Board of Education of the City of San Francisco, by the Examiners, charged with the duty of examining the classes in the Cosmopolitan School—

GENTLEMEN: In compliance with the written request of the Superintendent of Public Schools, the undersigned repaired, at 9 o'clock, A.M., on the 29th and 30th of May, to the Cosmopolitan School, in Post Street, there to proceed to the examination of the five divisions of said school, known under the name of Grammar Classes, with special reference to the practical instruction in the French language, as given in that institution. In accordance with a plan, no doubt previously arranged by the Superintendent, we there met with other examiners, upon whom devolved, as regard instruction in the German language, duties analogous to which we had undertaken for the French. This joint committee examined, successively, during the day of the 29th of May, the five classes, designated as follows:

Class of the Fifth Grade—English and German—Mrs. FOSTER, Teacher.

Class of the Fourth Grade (lower)—English, German, and French—Teachers, Mr. DULON and Mr. MOREL.

Class of the Fourth Grade (upper)—French, German, and English—Teachers, Messrs. DULON and MOREL, and Miss FOWLER.

Class of the Third Grade (higher)—English, French, and German—Teachers, Miss FOWLER, and Messrs. MOREL and BOLANDER.

Class of the Third Grade (upper)—German, French, and English—Teachers, Messrs. BOLANDER and MOREL, and Mrs. COOK.

This duty accomplished, the members of the joint committee decided to separate themselves into two committees—one French, the other German—each to record, in a separate report, the result of the examinations just concluded.

In the remarks which follow, there is, therefore, no reference to the German language, except where the subject matter necessarily includes it—the undersigned forming the French committee.

We deem it unnecessary to pass separately in review the different classes; our reasons for reporting upon them as a whole being this—that the teachers are the same for all, and pass necessarily from one class to another. The same observations, therefore, are applicable to all.

We give the most unqualified approbation to the fundamental idea of the Cosmopolitan School—the simultaneous instruction of youth in three modern languages, in their elementary and grammatical branches. Among most of the civilized nations it was generally conceded, that this kind of instruction presented the insurmountable difficulty of producing in young minds a confusion of words and ideas. Like many other theories long accepted as true, this has been proved to be unfounded. It has been demonstrated to us not only that this confu-

sion is not to be feared, but that an entirely opposite and favorable effect is produced by this method of instruction. The differences existing in the genius of the different languages seem to establish in the minds of the children, fixed points, precious guides for the memory, which prevent its straying. To whatever cause this effect may be due, it was made manifest to us in the most convincing manner. Among the hundreds of children, of every age, whom we questioned, or heard questioned, not one mingled together in his reply, words belonging to different languages. We insist strongly upon this point, because we consider it the very basis of the special instruction given in the Cosmopolitan Schools. If this basis had been unsound, we should have regarded it as our duty to advise the closing of the school, or its transformation into separate schools for English, French, and German. But we repeat that the contrary has been proved to us; and, consequently, this school is an advance upon the advances already made.

We consider it an excellent rule, which brings the children under the care of American, German, and French teachers, in succession; for it has long been known that a good pronunciation in any language is only to be acquired under a master to whom that language is native. In this respect, also, the Cosmopolitan School is fortunate; all the teachers speak well, at least, two languages, and some understand three. We should recommend that, so far as possible, an identity of method be applied to the explanations and demonstrations made to the classes; not that we observed any positive defect in this matter, but the point is important.

The classification of the scholars appeared to us defective; but it is to be remembered that the school has been organized less than eleven months; that new scholars have entered, almost every day, so that the number of pupils has increased from 16, in the beginning to more than 900; and that new classes have been formed

to meet the necessity of the case. The want of a better system of classification has undoubtedly made itself felt by the teachers, and now that the school is fairly in working order, it will be one of their earliest cares to supply this want. We have found the exercises in reading, in dictation, and oral translation, and the pronunciation, entirely satisfactory. The answers to questions on grammatical points were given with a readiness and precision which bear testimony to faithful and well-directed study. We observed with pleasure that the children learn to speak their own thoughts, and to remember, not the text but the subject and the principle; and we are led to anticipate even better results from the future lessons of the scholars.

According to the written invitation we had received, with these five classes should have terminated our duty of inspection; but the Superintendent of Public Schools did us the honor, on the evening of the 29th May, to request our presence the next day, at the examination of the four following classes:

Class of the Sixth Grade—English and French—Teacher, Mme. DEJARLAIS.

Classes of the Seventh and Eighth Grades—English and French—Teacher, Md'lle COULON.

Class of the Ninth Grade—English and French—Teacher, Mrs. MCLAUGHLIN.

Having accepted this invitation, we commenced the following morning, by the inspection of Mme Dejarlais' class. In this examination we had the kind assistance of M. Mibielle, a distinguished French instructor.

The class of the Sixth grade is intermediate between the primary and the grammar classes. The instruction here given is more varied, but less advanced than in the higher classes; and special attention is given to singing, elocution, and geography. Altogether, this department is admirably conducted, and many of the scholors might, without danger, be advanced to a higher rank.

The divisions of Md'lle Coulon and of Mrs. McLaughlin, were the objects of our close attention.

We had become convinced by our examination of the higher departments, that almost all the slight defects visible in the school, arise from the fact that the pupils have not undergone the same training in their first studies, before entering the Cosmopolitan School. It remained for us to see whether the primary department, intended to prepare the pupils for admission to the higher classes were conducted in such a manner as to supply the void for the future. We state, with great satisfaction, that we were highly pleased with these classes: and we consider that, looking at the ungrateful nature of primary instruction, the comparatively obscure results of toil in this direction, only to be appreciated by those who are well acquainted with the details of teaching, these two ladies are to be esteemed as among the most meritorious for zeal and devotedness, and for the comparatively great progress their pupils have made.

We do not propose, in this report, to touch upon questions of arrangement, of ventilation, and other details, more properly belonging to the Board of Education. We would, however, respectfully remark that the admission into the same classes of children of both sexes appears to us an objectionable feature, which we would desire to see otherwise, if no material or financial obstacles interpose.

The measures adopted by the administration of Public Schools for the orderly and impartial conduct of the examinations in the Cosmopolitan Schools deserve high commendation. The presence of the public, on such occasions, is precious, as a guarantee of the frankness and dignity of the proceedings, and a security for the strict truthfulness of the report made by examiners. Our thanks are due to the Superintendent, who kindly allowed, on the 30th of May, a repetition of the examination of the upper class of the third grade, made the

day before. The French professor, at whose request this repetition was had, expressed himself satisfied with the result of this new trial.

It remains for us, gentlemen, to communicate to you some few observations which the examinations of the Cosmopolitan Schools have suggested to us. Whatever decision you may arrive at concerning these observations, we feel assured that you will, at least do justice to the deep interest we feel in the work of public education, which the confidence of your fellow-citizens has called upon you to direct. We would call attention, in the first place, to the eminent value of the Cosmopolitan Schools, as a place of preparation for pupils destined for the High School. The great familiarity with English, French, and German, acquired almost without pains, by the pupils of the Cosmopolitan Schools, gives them great advantages for the active pursuits of commerce, of the law, of chemistry, of every branch of business life, in which it is advantageous to know more than one tongue; and in which one is it not advantageous? Such is the activity of the human mind to-day, so many and so great are the discoveries in every branch of knowledge constantly being made, that it is not possible to dispense with the knowledge of several languages; is it not better, if two or three can be learned at once and equally well, that they should be learned?

We remark that, while there are children of several nations in the Cosmopolitan Schools, the greatest advantages of the instruction there given, fall to the lot of those whose native language is English.

The reason of this plain. The children of foreign parents, living in a city so decidedly American, have facilities supplied them, in the very lives of every day, for the acquisition of the English language; while the English-speaking children, surrounded in their daily life by their native language, fail of such resources for acquiring foreign tongues. To these children the Cosmo-

politan Schools is peculiarly valuable; and we have found, upon classification, that the Americans, with their practical good sense, have availed themselves of the school.

We found the proportion of the scholars of the different nations to be: Americans, 50 per cent.; Germans, 30 per cent.; French, 20 per cent.

The Pacific Coast is rich in minerals, beyond example; and these riches lay upon us obligations to develop them wisely.

We leave to the good sense of the Board to decide whether a young man competent to read and study in their original languages the works of the great European masters of scientific research, is better fitted to do good service to the State, than one who must depend upon one single language.

Satisfied, as we are, of the grand results already achieved by the Cosmopolitan Schools, we would most strongly urge the establishment of similar schools in various parts of the city; and more especially towards North Beach. In that portion of San Francisco the population is largely European; the school facilities are not all that could be desired, and the necessity of education is strongly felt by the people.

A Cosmopolitan School in that part of the city would have the greatest effect upon the future status of the population; *thousands of children, who might otherwise remain essentially alien, would become Americanized by contact with American children, and by learning easily and thoroughly the English language.* The singular freedom of our life has already this influence; but the slow and partial assimilation to our ways of thought and life might be greatly accelerated by the association of our children with those of the Europeans, not yet thoroughly at home in San Francisco.

As a measure of economy, the establishment of these schools especially recommends itself to the public. It

is proved, by actual experiment, that the creative energy of these schools, and an admirable simultaneity of progress in the various classes, are combined in the institution we are contemplating; and the public is surely interested to know at how small a cost so great advantages are obtained. An institution at once so useful, so catholic, so humanizing in its influences upon thousands of young and growing natures, is an invaluable boon to the people; and in the development of this—the crowning glory of her admirable system of Public Schools—San Francisco will lay yet more broadly the sure foundations of a lasting civilization. Gratitude is due to those enlightened men who have conceived and carried out a design so beneficent. They have felt, no doubt, in their full force, the profound words of Goethe: "He who knows but his own language does not even know that." The men of every land and of every tongue—exiles from their own homes—find a refuge and a country in America; and in America, more than elsewhere, the word *Cosmopolitan* should have peculiar meaning. It is here that the children of men draw near to one and another. Let every barrier between them be broken down!

Respectfully submitted—

TH. THIELE,
JACQUES T. RAY,
F. A. FIRMIN,
G. C. HURLBUT,
E. COHN, D.D.,

French Com. on Exam. of Cosmopolitan School.

REPORT OF THE COMMITTEE OF EXAMINERS OF THE GERMAN DEPARTMENT OF THE COSMOPOLITAN SCHOOL.

To the Honorable Board of Education—

GENTLEMEN: The examination of the Cosmopolitan Schools, which took place on the 26th and 27th of May, and which the undersigned attended as Examining Committee, was in many respects gratifying and exceedingly promising for the future. In submitting a report of the results of that examination, we believe, that it must be a matter of interest to your Honorable Board and to the public at large, to ascertain whether the principles, on which so novel an institution is founded, have been carried into practical application.

It is certain, that a school, attended by nearly one thousand pupils of all nations, requires a firm and experienced guidance: otherwise, even the first condition of its effectiveness—order—would be wanting. In this respect it really made a very agreeable impression to observe in all classes of the Cosmopolitan Schools, as well during the Examination as during the intermissions, the utmost quiet and decorum. Nor could we help remarking, on the part of the children, a close attention and a zealous desire to comprehend and to solve the tasks imposed on them. This proved to us, that what they knew, was by no means the result of mechanical drilling, but a natural yield of self-conscious understanding. The children, especially in the Grammar classes, exhibited that fresh and genuine animation, which, regardless of what had been committed to memory, freely followed the teacher's guidance, and which convinced us, that "Grammar," so far from being merely memorized, had really become the property of their minds.

The impression, therefore, which the examination has made upon us, is the more favorable, as, during a period of eighteen months, fifteen classes, on which so large a

number of children were instructed, have been formed into two consistent and harmonious institutions—the Grammar and the Primary Schools. We are free to confess, that heretofore we were no admirers of the principle which is the basis of the Cosmopolitan Schools. We questioned seriously, whether the time could be found, to instruct children of a public school in three languages, without neglecting very necessary branches of instruction.

These doubts did not originate in mere speculations, but in the experiences of our own education—with regard to several members of this committee—in no superficial acquaintance with school and school-systems. We remembered how many years we had spent in the higher schools in studying "living" languages, which, as we were afterwards obliged to acknowledge, failed in ourselves to show any signs of life.

But now, having seen and examined the practical working of the Cosmopolitan School, we cannot but recognize the superiority of its mode of teaching languages over very many of European schools; and we consider that institution no longer a doubtful experiment, but a reality, highly creditable to those who labored to produce it, and full of rich results to the children.

As to the examination in French, which was limited to children *not* of French extraction, we desire to state, that in Reading, Grammar, and Conversation, the various classes exhibited a considerable amount of knowledge. The children answered questions with readiness, and their pronunciation was very good. We beg leave to express the hope, that the teacher may, as far as practicable, converse with the children in German and French, for we regard the constant communication in the language which is being taught, as the main element of the success of the Cosmopolitan Schools.

From the examination in German, children of German parents were excluded. We were surprised when the

teacher spoke to the children in German, and our surprise became greater, when we saw that the children not only understood all the teacher said, but readily responded in the same language. In the elements of Grammar, considerable progress has been made. After taking active part in the examination, the Committee could not but acknowledge, that the results obtained by the teacher were highly satisfactory.

Our expectations have been greatly exceeded, and we cheerfully admit the success of the principle on which the Cosmopolitan Schools have been conducted. Though there are of course deficiencies and though the work is by no means completed, yet the foundation is well and firmly laid. May those who have so manfully, and in in face of most serious obstacles, labored to build up that excellent institution, continue to receive the public esteem and recognition.

All of which is respectfully submitted.

F. HANSEN, D.D.,
E. COHN, D.D.,
LEO ELOESSER,
WM. LOEWY.

Committee on Examination of the German Department of the Cosmopolitan School.

REPORT OF MRS. A. E. DEBOIS.

To the Superintendent of Public Schools and
Committee on Cosmopolitan Schools—

GENTLEMEN: I have examined the papers in Grammar and Geography of the third and fourth grades of the Cosmopolitan Grammar School, and with the results found below:

THIRD GRADE—GRAMMAR.

Of the 43 third grade pupils examined in Grammar, the following pupils obtained 90 per cent. of credits, or upwards: Anna Lee Gunn, Louise Solomon, Nellie O'Laughlin, G. S. Arnheim, A. Falkenstein, H. Badarous, Julius Reinhardt, and A. Genot.

The following pupils obtained 85 per cent. of credits, or upwards: F. Hollub, Edward Abell, Jno. Nolen, Lizzie Wehmoller, Melvina Pelton, Susie L. Hilton, Fannie Hawley, and Mary Roberts.

The following pupils obtained 80 per cent. of credits, or upwards: Thomas H. Hughes and Lollie Monmonier.

The following pupils obtained 75 per cent. of credits, or upwards: Louise Pomroy, Julia Randle, Chas. E. Paxton, C. Riegelhuth, Adolphus Zott, Dena Krone, Langdon Kellogg, and Emma Calhoun.

All of the above, to wit: 26 pupils, obtained the full or more than the necessary percentage (namely 75 per cent.) for promotion to higher grades.

THIRD GRADE—GEOGRAPHY.

Of the 44 third grade pupils examined in Geography, the following received 95 per cent. of credits or upwards: Lollie Monmonier, Edward Abell, Louise Pomroy, Jno. T. Boyle, and C. Riegeluth.

The following pupils obtained 90 per cent. of credits, or upwards: Anna Lee Gunn, G. S. Arnheim, Theodore Bee, A. Hourcade, John Nolen, Adolphus Zott, Melvina Pelton, Virginia Deck, and Dena Krone.

The following pupils obtained 85 per cent. of credits, or upwards: Nellie O'Laughlin, F. Hollub, Carl Betger, Thos. A. Hughes, Chas. E. Paxton, William H. Wood, Lizzie Wehmoller, Fannie Hawley, Langdon Kellogg, and Annie Roberts.

The following pupils obtained 80 per cent. of credits, or upwards: Julius Reinhardt, Ella Patrick, Chas Wehn, Alfred Rulofson, and Mary Roberts.

The following pupils obtained 75 per cent., or upwards: A. Falkenstein, Wm. Roberts, Susie L. Hilton, Julia Anthers, and Mary Collins.

All the above, to wit: 34 pupils, obtained the full or more than the necessary percentage, namely, 75 per cent. for promotion to higher grades.

FOURTH GRADE—GRAMMAR.

Of the 54 fourth grade pupils examined in Grammar, the following obtained 95 per cent. of credits, or upwards: Josephine Hug and Annie Wetzel.

The following pupils obtained 85 per cent. of credits: Carrie Birdsall, Emma Freund, and Theresa Balhaus.

The following pupils obtained 80 per cent. of credits, or upwards: Willie Taylor and Mary Poetz.

All the above, to wit: 7 pupils, obtained the full or more than the necessary percentage, namely 75 per cent., for promotion to higher grades.

NOTE.—The questions in Grammar were, I think, too difficult for pupils so young as those in the fourth grade.

FOURTH GRADE—GEOGRAPHY.

Of the 52 fourth grade pupils examined in Geography the following obtained 100 per cent.: Theresa Balhaus.

The following pupils obtained 95 per cent. or upwards: Lena Simonds, Katie Eckel, A. Hanson, C. Johnson, C. Boyle, Julius Oettl, Louis Aibischer, Carrie Birdsall, Allia N. Whitcomb, Emma Freund, L. Duffard, Mary Kopp, Clara Popper, and Lillian M. Dennis.

The following pupils obtained 90 per cent. of credits, or upwards: Willie Taylor, Isaac Berck, H. Leiser, Walter Taylor, Jno. Stahle, Lessitta Kalthoff, Louisa Denger, and Sophia Bremer.

The following pupils obtained 85 per cent. of credits, or upwards: Arnold Arnson, Alfred Miller, Mary Callahan, Wm. Daingerfield, Jessie Brown, and Annie Witzel.

The following pupils obtained 80 per cent. of credits, or upwards: E. Bert, Arthur Hayne, Chas. Fitch, Isabella Levy, Helen M. Platt, Mild Stern, H. Gould, and Emma Marks.

The following pupils obtained 75 per cent. of credits, or upwards: Jno. Heitmann, Willie Brown, Walter Abell, and Charlotte Reinhards.

All the above to-wit: 41 pupils, obtained the full or more than the necessary percentage, namely, 75 per cent., for promotion to higher grades.

The foregoing results I consider in ths highest degree satisfactory—creditable alike to pupils and teachers. The percentages of perfect answers in Geography I found remarkable. In this branch the examination was splendid. The results obtained in grammar were also excellent, though not quite equal to the percentages obtained in Geography.

I understand that the classes which were examined on 3d and 4th grade questions have been but about four months in the 4th grade studies. *One year* being the ordinary time allowed classes for their work in these grades, the progress made by the classes, the papers of which I have examined, seem almost incredible, especially when we consider that every pupil in these classes has devoted from 1½ to 3 hours each day to the study of the French and German languages. One conclusion seems inevitable, to-wit: That the pupils had a most perfect and complete preparation for the 4th grade before promotion to same, and that they have been remarkably well advanced since they were recently classified, both facts favorable to pupils and teachers.

The penmanship of the 4th grade pupils I consider very fine, especially considering the fact, that the pupils have had no *special* instruction in that branch.

MRS. A. E. DUBOIS.

REPORT OF PROF. T. C. LEONARD.

To the Superintendent of Public Schools—

DEAR SIR: Having examined papers on Arithmetic from the Cosmopolitan School, I would beg leave to state, that the pupils seemed from their papers, to have attained a very commendable degree of proficiency, and a very thorough appreciation of the subject, as far as they have been. I should think most of those examined on fourth grade questions, are ready for promotion. Following are the results:

THIRD GRADE—ARITHMETIC.

Of the 45 third grade pupils examined in arithmetic, the following obtained 90 per cent. of credits, or upwards: Anna Lee Gunn, G. S. Arnheim, Jno. Nolen, and C. Riegelhuth.

The following pupils obtained 85 per cent. of credits, or upwards: Nellie O'Laughlin, A. Falkenstein, Thos. A. Hughes, Chas. E. Paxton, W. H. Wood, and Lizzie Wehmoller.

The following pupils obtained 80 per cent. of credits, or upwards: F. Hollub, Edward Abell, Virginia Deck, and Mary Roberts.

The following pupils obtained 75 per cent. of credits, and upwards: Louisa Salmon, Julia Reinhards, Louisa Pomroy, Julia Randle, Fannie Hawley, and Emma Calhoun.

All the above to-wit: 20 pupils, obtained the full or more than the necessary percentage (namely 75 per cent.), for promotion to higher grades.

FOURTH GRADE—ARITHMETIC.

Of the 53 fourth grade pupils examined in Arithmetic, the following obtained 95 per cent. of credits: Julius Oettl and Louisa Denger.

The following pupils obtained 90 per cent. of credits,

and upwards: Arnold Arnsen, Willie Taylor, H. Leiser, and Josie Brown.

The following pupils obtained 85 per cent. of credits, or upwards: Katie Eckel, Peter Coleman, C. Johnson, Henry Hollub, Chas. Fitch, Walter Taylor, Isabella Levy, L. Duffard, Clara Popper, Rosa Levy, Lilian M. Dennis, Sophia Bremer, and Therese Balhaus.

The following pupils obtained 80 per cent. of credits, or upwards: Lena Simonds, A. Hanson, C. Boyle, Geraldin Gager, Isaac Berck, Louis Bernstein, Arthur Huyne, Louis Aibischer, Mary Callahan, Lessetta Kalthoff, Carie Birdsall, Alice H. Whitcomb, Helen M. Platt, Mary Callahan, and Mary Poetz.

The following pupils obtained 75 per cent. of credits, or upwards: Willie Brown, W. R. Daingerfield, Josephine Hug, Mary Kopp, and Charlotte Reinhardt.

All the above to-wit: 39 pupils, obtained the full or more than the necessary percentage, namely, 75 per cent., for promotion to higher grades.

T. C. LEONARD,
Prof. Mathematics in Boys' High School.

REPORT OF D. LUNT, ESQ.

To the Superintendent of Public Schools, and Committee of the Cosmopolitan School—

GENTLEMEN: I have examined the papers of the third grade of the Cosmopolitan School in Oral Instruction, with the following results:

Of the 45 pupils examined in Oral Instruction, the following obtained 85 per cent. or upwards: Malvina Pelton, Susie L. Hilton, F. Hollub, and Mary Collins.

The following pupils obtained 80 per cent. credits, or upwards: C. Johnson, W. R. Dangerfield, A. Hanson, Ella Patrick, A. Zott, F. Hawley, C. Wehn, Thos. Hughes, and Chas. Paxton.

I have also examined the pupils of the fourth grade in Reading, and beg leave to state, that they acquitted themselves very creditably in that branch of study. I was indeed astonished to hear the English language pronounced so well among children, many of whom have parents of foreign naivity—facts which commend very favorably both teachers and pupils. I may add that the order in the class-room during my presence, was also exceedingly good.

DANIEL LUNT.
Secretary of the Board of Education.

REPORT OF DR. J. ECKMAN, AND OTHERS.

To the Committee on
Ancient and Modern Languages—

GENTLEMEN: Having been charged, during your absence, to watch, carefully and conscientiously, over the examination of the Cosmopolitan School, we declare ourselves perfectly and astonishingly satisfied with the result of the instruction in German Reading, Spelling, Translating, Writing, Arithmetic, and Grammar. It is our sincere conviction that teachers as well as pupils have fulfilled their duty to the best of their ability. The institution itself is not only a benefit, but also a necessity both to the German and to the whole population of our city, and is highly calculated to direct the current of immigration, more than ever before, to California. We confess that only on few occasions it was possible for us to distinguish, in reading or answering questions, the American child from the child of German parents—only the name of the child called for, would speak for it—but this token did not prove good during the examination of Miss Graf's Class, for the pupils of either the first or second divisions pronounced the German without the least foreign accent. So, our presump-

tion of their nativity would only remain presumption. The questions presented were always carefully and accurately answered, and we ascertained, by altering and changing the questions, that the pupils were not previously drilled for the examination. If this school could be more carefully graded, and if, in the higher classes, more time could be devoted to Mathemathics, and Elementary Geometry be introduced, and the school allowed to remain under the direction of its present faithful and efficient Principals and the Hon. Superintendent, Mr. Pelton, by whom this system was founded, we may heartily express our well-founded hope that this school will develop into one of the best of our Department, of the State, or even of the United States; become an honor to the community, and even to every citizen.

M. Mendheim,
A. Solomon,
Dr. Julius Eckman.

DEPARTMENT OF PUBLIC INSTRUCTION,
San Francisco, Aug. 23d, 1867.

JOHN C. PELTON,

Superintendent of Public Schools,
City and County of San Francisco—

DEAR SIR: In answer to your request desiring me to state my opinion concerning the organization, value, and efficiency of the Cosmopolitan School, I take pleasure in replying that, from your first organization of the school, I favored the plan, and never had any doubts as to its ultimate success and popularity. I recently visited the school since its reorganization, and was gratified to find that it exceeded my most sanguine expectations, in respect to order, classification, and evident progress.

I fully concur with the philosophical and scholarly reports of the gentlemen appointed to conduct the examinations at the close of the last term.

The school meets a great want of the people. If children are to learn the modern languages at all, they should begin in the primary departments. I am confident that after three years' instruction it will be found that the pupils, while acquiring a knowledge of French, or German, or Spanish, will have made equal progress in the ordinary common school studies with those in other schools, who have been occupied exclusively in studying the English language.

It is not strange that so marked an innovation on the old system of education should have excited some doubts as to its success, and some hostility to its progress; but the school having demonstrated, to a considerable extent, its own value, has now become a part of our practical system of public instruction, which few desire to dis-

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pense with, and which all thinkers and scholars will cherish and protect.

It has been urged that this school was established in contravention to certain sections of the Revised School Law. I see no force in the objection; I know of no section of the law which, by any construction or misconstruction, can be tortured into hostility to schools conducted on this plan. The whole spirit of the law is in favor of it, for the object of a public school system is to give the children of the people such a practical education as the spirit of the age requires, and such as the citizens, gathered from all nationalities, may demand.

Very respectfully,

JOHN SWETT,

Sup't Pub. Instruction.

[From the California Medical Gazette, October, 1868.]

HYGIENE,

AS REGARDS THE

Sewerage of San Francisco.

BY

ARTHUR B. STOUT, M.D.

SAN FRANCISCO:
A. ROMAN & CO., PUBLISHERS,
Nos. 417 and 419 Montgomery Street.
1868.

HYGIENE,

AS REGARDS

THE SEWERAGE OF SAN FRANCISCO.

Sewerage is the mechanism by which the sewage of a city is removed.

Editors California Medical Gazette:

We propose, with your assent, to devote a few articles to the discussion, in your journal, of the important question of the system of sewerage now in use in this city. The defects of this system are an active cause of disease. The foul emanations from the sewers carry many a strong man, many a fair woman, in the bloom of health, and still a larger proportion of young children, to a premature grave. Even though the injury to health were less destructive, the offense which smells so rank, forcing all who walk upon the streets to inhale the sickening gases of such pestilent putrefaction, is an insult to civilized humanity. Such an offense would justly revert upon the municipal government, if tolerated after the remedy shall have been suggested.

While all minds have been alarmed from the fear of cholera; while sanitary measures are loudly called for, to clear away superficial nuisances, of very secondary consequence; while pamphlets are published and nostrums invented to cure the cholera; while quarantine exactions are proposed, to arrest the march of the dreaded pest from Asia, *via* Panama, or China; while the city's estimable health officer is hurrying from street to street to combat selfish and reckless landlords or tenants, recommending new sewers *ad infinitum*, and regard-

progress *pari passu*, in equal movement with the admirable improvements of private enterprise. What will avail your elegant superstructures, if the underworks and foundations are unhealthy and unsound. The malarious exhalations which generate endemic maladies, as they exist in San Francisco, by their continuousness, their insidious gnawing into the life source of health, or in other terms, by tainting through weakly poisoned air the atmosphere which enters the lungs for human respiration, hurry on to early graves more individuals in two years than would an invasion of Asiatic Cholera, with its demoralizing influences, in as many months. The action is slower, and from the apathy which slowness begets, still more certain in its deadly influence.

In order to estimate justly, not the merits but the demerits of the sewerage, as now conducted, it is desirable to explain the present system; then criticise its working; and finally, indicate the remedy.

Through all the principal streets, large brick sewers are constructed, measuring 3 ft. by 2 ft. inside measurement, and 1 foot in thickness. These sewers descend to the bay, with a dip as favorable as the lay of the land and the grade of the streets will permit. This dip, however, in the low portions of the city, is very slight, and in some places quite insufficient for quick drainage. Along these sewers, at certain intervals, large openings, or man holes, are built, to permit men to enter and clean out the accumulated mud and ordure. At the corners of the streets other openings, called traps, are constructed, that surface water, rain and street washings may enter. These traps are ingeniously built, with a central partition to form a water valve, which prevents air in the main sewers from escaping in the streets, while the street water may enter freely into the sewers. The action of these water valves is excellent while the traps are kept in order. When filth accumulates, however, the water is driven out of the valve, and a putrefactive mass is gathered in the bottom of the trap, through which the gases in the sewer can permeate, and infect the streets. To free the traps when they become clogged

men are employed to shovel out this putrid mud, as may be frequently seen at the street corners. Large piles of this mud, which the sewers are constructed to carry off, never to be seen again, nor smelt, after once entering them, are strewn upon the street for hours, disseminating putridity and disease, until other men with carts shovel it up again into their vehicles: thus, by dividing it up, giving it a thorough ventilation, as though to sanify it, and again whirling its noxious effluvia into the air, and the noses of the faithful tax-payers, who pay so dearly and yet so cheerfully for the epicurean privilege. Aye, the open cart carries away the mud, scattering far and wide its baleful aroma; the nose absorbs the flying pestilence: and by and by another vehicle solemnly removes a victim of a wretched and pernicious system.

All the sewers, as thus described, are intended to empty their contents into the bay along the wharves at North Beach, in Mission creek, in Islais creek, at South Beach, and so on, as the natural inclines of the soil permit. Does the result fulfil the intention? We will presently show.

To deprecate that which exists when no improvement is offered, may be considered unworthy; but if the propositions advanced are not fairly sustained, then let us receive the punishment due to our temerity. Having thus given a general idea of the present system of sewerage, its defects will soon appear.

Of what avail are these vast brick canals under the city? Their immense cost is already realized by land owners, and can be rendered only more apparent by statistics. During the months of drouth very little water, but the waste of the water companies and the washings of houses, enters. This quantity is insufficient to wash away the accumulations. It is still worse in the traps, which are quickly clogged, and which, without a constant supply of water to form the water valve, become outlets for effluvia throughout the city. Were it not for the winds from the ocean, this fault in the sewerage would render the air insupportable. At night, when the atmosphere is at rest, the odors from the street corners are still more per-

ceptible. The insufficiency of water in the main sewers permits their contents to mingle with sand which enters them, and form a thick paste, which moves sluggishly forward, or is entirely detained. Thus putrefaction has ample time to generate foul gases. These, of course, occupy the upper portion of these large canals, which conduct them most effectually throughout the city. As the water flows downward, the counter current of gas receives a pressure which forces it rapidly upward. An exit it must and will have; return it cannot, and consequently it finds its way through the lateral pipes and drains into the houses. It rises to the highest elevations of the sewers; and in that manner the high lands, which are selected for their healthfulness and freedom from malaria, become as much infected as the low grounds of the city. In every residence where the lateral sewers are neglected, or unprovided with traps or water valves, the noxious odor penetrates, often to a degree to produce nausea and vomiting to the occupants of basements. This is the fruitful source of fevers, putrid sore throats, and many eruptive diseases. Were the main sewers provided in all seasons with an ample supply of water, their accumulations would be rapidly washed to the bay, and putrefaction have no time to establish itself. At no time are these vast sewers more than one-third occupied by sewage, seldom as much; the remaining two-thirds is filled with the gaseous products of putrefaction. We have shown that these would be greatly diminished if the sewage matter were carried off faster; but being produced they would be rapidly forced out of the way, if two-thirds the calibre of the sewer were not provided for their accommodation.

The only apparent reason for these immense subterranean channels is to allow men to enter and clean them; but a rapid stream of water obviates this necessity.

The outlets of the sewers are often uncovered at low tide, and the discharge from them spreads far and wide on the shore, exposed for several hours to the sun, while awaiting the flood-tide to wash them away. Thus is created a new source of infection. The air in the sewers being warmer than the external atmosphere, ascends the sewer, while the air from

without follows. The gases, therefore, receive another impulse besides that already mentioned, and are projected through the side pipes into houses and the elevated portions of the city. Happily for us, then the sea breeze comes to our aid and fills the *rôle* of scavenger.

Imagine every street of the widely expanding city channeled beneath with brick cylinders, two-thirds of whose area is filled with blood-poisoning effluvia, which circulate under pressure, and find egress into the atmosphere through every orifice, every leak, and every pore. A foot thick wall of brick and cement does not restrain them. Out they must, and if no outlet is given they will permeate the wall and transpire through the soil. These cylinders act like retorts and generate the vile gas from their own decomposing contents. Imagine then, this vast distillery of pestilence seething its vapors beneath your soil, beneath your houses, beneath your beds, evolving them day and night without intermission, inoculating every breath you inspire with a fractional dose of poison. You will begin now to comprehend why a sudden congestive chill has destroyed in an hour or a day some young and beautiful woman in the joy and bloom of life. You will perceive why some hale, strong man, who has received some injury from which his natural strength would enable him easily to recover, is suddenly seized with rigors or chills, followed with a raging fever, and perhaps erysipelas, and in a few days dies, or is rescued with difficulty. Again, you will understand why little children of unexceptionable parentage, in the perfection of health, clothed with perfect propriety, nourished in the best manner with the most careful choice of food, are suddenly seized, perhaps in the night, with croup, with inflamed throats, with convulsions, and in a day or two are borne to the cemetery. Why should such children, with perfectly normal constitutions, enjoying without stint a wisely directed physical education, defeat the law of nature and prematurely die? It is because a poison has been inhaled into their blood through the lungs, which has slowly and insidiously intoxicated the vital fluids and the brain, until the sys-

em becomes fairly saturated, and then follows the sudden explosion of disease, and rapid death. The vital fluids have become altered by a contamination which parental solicitude has neither perceived nor understood, until death's climax is at hand, and medical skill, however rationally applied, has no time to alter the fiat. The other minor causes of children's disorders are incompetent to work such havoc in so short a period.

The assertion is not advanced that all such occurrences depend upon the sewers. This peninsula was subject to malarious diseases before those indispensable canals were laid. But natural miasms of the soil bear no ratio to those artificially engendered and propagated by a badly organized sewerage. Hence is the increase of mortality in a greater ratio than the natural increase of population. As we sow we may expect to reap; but it is discouraging to be answered, when we venture to boast that the improvements in medical science have increased the average length of human life, that the mortality record proves the reverse. Of what avail are improved surgery and more enlightened medicine, when another enemy, of man's own creation, enters the field to make impotent our skill.

The construction of these immense canals, called sewers, is conducted according to a statute or arbitrary ordinance, which leaves to the Street Commissioner very little room to exercise his own discretion. The ordinance is inexorable, and sewers are laid in small streets of the same dimensions as in large ones. There are alleys whose perfect sewerage could be obtained with twelve or eighteen-inch pipes, and oftentimes by dipping from the center of the block both ways to the adjoining streets, might be placed nearer the surface. The diminution of time and expense must be apparent. But no; a great putrid gas chimney must be laid, to retain and distil the pestilence.

THE REMEDY.

Costly as may be the remedy of these evils, it has become indispensable to the public safety to seek for and apply some curative process. The public health is the most eloquent

appeal to the tax-payer. With the new system to be proposed, the heaviest expense is in the first inauguration: after which we hope to show that a great diminution of the current expenses will follow, and the enormous sum saved in the construction of the sewers will in the end effect a decided economy.

The great remedy for all this distress is water, and the mode of its administration is the cure. Irrigation in abundance, incessant both in summer and in winter, applied under a system of perfect discipline and continual watchfulness, will deluge the nuisance, and wash it to the sea before it can become an instrument of misery and death. Fresh water from the water companies is too scarce and too dear: but salt water in abundance is in the bay, and costs nothing but the trouble of its use.

There are two modes of application: Firstly, to construct reservoirs upon properly chosen elevated places, and with steam-engines pump up the water, and thence distribute it into all the sewers. Pipes may also pass through the sewers, which pipes, supplied at intervals through their course with irrigators, and constantly discharging jets of water, would effectually prevent the formation of accumulations or clots. The reservoirs need not be large nor expensive, for as there is no object to detain the water, but to let it rush off as rapidly as raised to the proper elevation, only small tanks would be required. Or, secondly, the water might be injected directly through pipes supplied with irrigating jets, and running upward in the sewers. The objections to this plan would be the inequality of the pressure on the pipes, and the inconvenience of their bursting in the sewers. The reservoir system secures greater evenness of pressure. Where there is no necessity to maintain large supplies of water, neither the engines nor the reservoirs need be of such great capacity and cost as those used in the hydraulic operations of the city of Philadelphia. If, however, such immense machinery and such vast enterprises are undertaken in Philadelphia and New York to maintain the public health, by supplying pure water for healthful

nourishment, why should not San Francisco protect its health by supplying clean water to wash away the causes of pestilence and disease.

The introduction of the water system cures in an instant the evil at the corners of the streets. An irrigator attached to every water valve or trap (water valve in their present condition is surely a misnomer, for they rarely receive any water), immediately cleanses the traps, leaves the water necessary to form the valve, and thus only can prevent the exit of gases. What, now, becomes of your men digging filth from the corners and the man-holes?—the heaps of sewage on the streets?—the open carts fanning the air with noisome stench? They all vanish, *presto*; the irrigator keeps these effluvia where they belong, and the rapidity with which offal is carried to the sea prevents its degeneration by putrefactive decomposition into pestilential vapors.

What would London pay for our facilities for the removal of offal? Elevated grounds for a head of water, every tidal wave giving streams of crystal water from ocean springs, the Golden Gate as discharge-pipe only a few miles off; and yet, those facilities, placed so easily within our reach, are disregarded.

To facilitate this copious irrigation, the aqueducts should be of a size to concentrate the offal, and enable the jets of water to play directly upon it. They should have a pitch, to obtain the greatest possible velocity to the flow of the stream. They should have abundant space for their contents to flow without exerting pressure upon them, and also room for some unavoidable gas; yet there should not be space for the volumes of gas which would be evolved from decomposing matter detained in the tubes; but as there should be no detention of the sewage, so, also, will there be but little evolution of the gas. Tubes of iron of eighteen-inch caliber would suffice for mains; or if, on trial, Skinner's sewage pipes prove sufficient, they offer advantages over iron or brick. They can be perforated smoothly to admit lateral tubes, and are cheap. Such aqueducts can be laid nearer the surface, and thus where the incline of the land is slight, a better pitch for the pipes be obtained.

Any one who will calculate the difference of cost in this process over the enormous expense of three feet by two feet brick sewers; the time, labor, and street obstruction they cause; will now discover the eventual economy. The new system, by requiring engines and reservoirs, appears to threaten the city with a new debt. It is shown, however, that there is economy in every step.

Another advantage to be derived from using small aqueducts, is the relief immediately given to the low lands where there is little or no pitch, as below Montgomery street, along Mission Creek, and in Hayes' Valley. The terminus of the aqueducts in the bay can always be carried into deep water, below low tide, and thus form a descent. The upper termini of the tubes are always in elevated places. When now the water descends with force, it must drive all the sewage in the horizontal portion of the aqueduct before it, until it meets the last descent into the bay. Again, as the outlet in the bay is always submerged into deep water, there will be no accumulations of black putrescent filth along the shore, nor effluvia to infect the air.

As regards the upper termini of the sewers, an apparatus can be attached to them by which all the gases in the tubes may be rapidly attracted upward and be consumed. By finishing the aqueducts with a horizontal cylinder of iron, which passes through a furnace and terminates in a chimney at right angles to it, a powerful upward current of air will be established, and be burnt as it passes through the heated retort. As the retort merely passes through the furnace, these fires may be made useful for various purposes in the arts.

Another source of income to diminish the expenses of this system may be derived from the reservoirs. These bodies of water can furnish power for turbine wheels, and thus promote many industries which do not need much motive force.

In order to derive the utmost benefit from the reservoirs, and as an extra precaution to prevent the water valves at the street-corners from becoming obstructed, hydrants might be placed at these openings connecting with the main aqueducts.

Every two or three days an inspector should allow the water valves to receive a thorough washing. These hydrants may subserve another purpose—as street sprinklers they may lay the dust. In the event of large fires, the Nicholson and Stowe pavements, saturated with asphaltum, must infallibly burn, and by rendering the streets impassable, increase indefinitely the destruction of property. But if the streets can be flooded with salt water from the hydrants, these costly pavements may be saved. By using this expedient at fires, where the water by reason of its saltness cannot do extra damage, the expense of fresh water from the companies may be diminished.

Having discussed as briefly as the great interest of a subject made up of many details would permit, the question of irrigation and the sewers, as they now exist in the streets, the great home question now arises: the protection of the individual houses, not only from the effects of the retained sewage within themselves, but what is worse, the introduction of the poisonous gases from the main sewers of the streets.

But few observe that while they free themselves, at small cost, of their house and kitchen waters, through wooden canals under their tenements, that they are introducing a worse nuisance than the one they banish. From the very handy construction of these tubes, while they let a little stream of water out, they let a strong current of air in. The water companies and the gas companies watch with scrupulous economy any leaks or defects in their pipes, because every cubic foot of gas or water lost has a specific value; but the gases and waters from the sewers, being rated as of no account, are cared for by nobody. But that they are of immense account to somebody the mortality report is daily proving. The apparatus of sewerage should be as much a work of precision as the mechanisms which enter well-conducted gas and water works. And if municipal authorities do not possess the energy, or think it undignified, to establish and incessantly watch such a system, it should be handed over to the tender mercies of a monopoly to profit by it.

Not a house, not a tenement should be unprovided with sewerage, properly managed and frequently inspected. There is no longer an apology for neglect. Landlords and tenants have both their health, money, and lives invested in the institution, and are alike responsible for the public safety. Usually the landlord throws the expense on the tenant, while the tenant throws back the shuttlecock upon the landlord, and meanwhile nothing is done. Something *is* done: the public and the press call aloud for better health, and the invalids say: "but doctor, why am I always sick? why does my malady relapse? is there, then, no *permanent* cure?" The profession answer: "No, ladies and gentlemen, because your blood is freshly poisoned every day, and the action of antidotes is not *permanent*.

To counteract, then, as far as may be, the infection of houses, water traps should be made in every conduit from the house to the main sewer. This precaution is easy now, for there are patent, cast-iron garbage boxes, with water valves, which should be placed in every lateral sewer. These apparatuses are exceedingly efficient, and are provided, or should be, with movable galvanized iron filters to separate the solid from the liquid offal. These contrivances are cheap, and everybody should buy them. Unless, however, frequently inspected, they are neglected by reckless people, and the water is allowed to dry out. This is especially liable to happen in untenanted buildings. It is not difficult nor expensive to obviate such accidents by constructing somewhere in every lateral sewer, a wooden box water valve, holding eight or ten gallons of water. Thus, a box is planted in the ground, in some easily accessible place. The sewer pipe from the house enters this near the bottom; the discharge pipe to the main has its outlet near the top of the box; between, of course, a small lake of water is formed, through which the gases from the streets cannot pass. Again, into the upper part of the box introduce the rain gutter from the roof of the house. During seven months of the year the rain thus introduced keeps perfectly washed the water valve. No gases can collect, for the rain pipe con-

ducts them all the year to the upper air. The large quantity of water these boxes contain, constantly changing, prevents their drying out, and is a guard valve which will amply repay its cost. The box should have a tight cover on hinges, to allow the inspector from time to time, once a week, to examine its condition.

The next important thing to look to is the *solid* offal, the vegetable and animal refuse of the kitchen. This should never be permitted to enter the sewer. The filter which separates it from the liquid garbage should be frequently emptied into a close receptacle and be daily removed. This substance is a fertile source of infection. It quickly heats, ferments, and putrifies. But nobody likes to smell it or to touch it. It is the grand bugbear of careless, indifferent, ignorant people. The more lazy they are to remove it, the better it punishes them when they must lose their sweet scented companion. Yet this substance is invaluable to form a rich fertilizer of the soil. Thousands and tens of thousands of tons of valuable manure are lost.

Let us suppose a perfect system of management. Early every morning the house barrel is emptied, before putrid decomposition begins. It is emptied into closely covered carts; and thus handled, all the horrid odors which we now daily perceive, from filthy, open, disgusting garbage carts, which may be scented a whole block while they stand lazily ventilating themselves on the street, will at once be prevented. The prevention of decomposition prevents infection. Let these vehicles now deposit their contents at some common rendezvous where they are forthwith disinfected, and then converted into poudrette. This method presents another source of income to defray the general cost of sewerage.

Will you seek another source of revenue for the same great object? The fire insurance companies pay large bonuses to protect their policies. Their gratuities to the fire department have been great. The marine insurance companies expend immense amounts in salvage, and in ship surveys, to guard their risks. In like manner let the life assurance societies contribute freely to the sewerage fund.

Should the registrar of vital statistics separate, if it were in his power, all the deaths caused by malarious infection from the mortality roll, and suppress, if it were possible, this cause of disease, the decline in the record of death, and the consequent increase in the average duration of life, would astonish the actuaries of life insurance companies, and amaze the general observer. It is to the interest of every individual to be able to obtain life assurance at a low premium. Surely, then, a city which diminishes, by its sanitary precautions, the ratio of deaths, should enjoy the privilege of a lower rate of premiums than another, which neglects the principles of hygiene.

The discussion of this subject is by no means exhausted; but to conclude, for the present, the hope is entertained that the vital importance of applying a radical remedy to the evil as it now exists, and which cannot fail to injure the character of the city for healthfulness, to divert the immigrant from the settlement he otherwise would be disposed to make, and even induce families to break up their homesteads, will induce the proper authorities to give it the study it merits.

The inauguration of such a system calls for a special department in the Engineer's Bureau of the city. The work is beyond the competency of a Street Commissioner elected by popular caprice. An engineer's department, endowed with power, and supplied with faithful assistants and deputies, possessed also of ample funds, is far more capable to conduct a system comprising elaborate details and cultivated knowledge in a great variety of the departments of science.

FESTIVAL

IN CELEBRATION OF THE

TWENTY-FIFTH ANNIVERSARY

OF THE

Arrival of the Steamer "California"

AT SAN FRANCISCO,

FEBRUARY 28th, 1849,

GIVEN BY THE

SOCIETY OF "FIRST STEAMSHIP PIONEERS,"

FEBRUARY 28th, 1874.

SAN FRANCISCO:
H. S. CROCKER & CO., STATIONERS AND PRINTERS,
Nos. 401 and 403 Sansome Street.
1874.

PREFATORY REMARKS.

As the programme which the "First Steamer Pioneers" proposed to present to their guests, on the 28th of February, 1874, was not fulfilled entirely to their own satisfaction, in the presence of all their guests, they now offer them in the present form a general *resume* of the proceedings of the day.

A variety of reasons interrupted the regular course of the programme, and the inclemency of the weather, with insufficient time, prevented the steamer reaching Mare Island, where a sumptuous repast, music and dancing were organized for the reception of our party.

We desire, however, to tender to Admiral John Rodgers, Commanding at Mare Island, and his officers, our most grateful thanks for their so kindly proffered hospitality—and deeply regret that we were not permitted to enumerate the entertainment we should have enjoyed among the varied features of our festival.

We seek, also, in this manner to express our warm appreciation of the generosity of the Pacific Mail Steamship Company, through their courteous agent, Captain Higgins, and their efficient commander, Captain Korts, for according to us the steamer *California*, fully officered and equipped for the occasion.

Again do we most sincerely thank all the Pioneers and guests who favored us with their encouraging coöperation in

rendering this celebration of the Twenty-fifth Anniversary of the arrival of the *California* at San Francisco, such an agreeable success, proving thereby that they recognized approvingly our determination to render general and universal our tribute to the efforts of all Pioneers, in elevating in the short space of twenty-five years our fertile State, from its primitive condition in 1849 to its present exalted position among the sister States of our Union.

THE 25TH ANNIVERSARY

OF THE

Arrival of the Steamship "California"

AT SAN FRANCISCO, FEB. 28th, 1849.

PROGRAMME.

RECEPTION COMMITTEE. *Yellow Badge.*	- - - -	HENRY F. WILLIAMS. ALEXANDER AUSTIN. EUGENE SULLIVAN.
DECK COMMITTEE. *Red Badge.*	- - - -	SAMUEL F. BLASDELL. A. A. PORTER. E. T. BATTURS.
CABIN COMMITTEE. *White Badge.*	- - - -	O. C. WHEELER. CAPT. WHITTELL. D. W. C. THOMPSON.

ROUTE OF EXCURSION ON THE BAY.

From P. M. S. S. Wharf, Brannan Street, to Hunter's Point; to Fort Point; to Mare Island, via Raccoon Straits; Return to P. M. S. S. Wharf. Start at 9.30 A.M. precisely, Feb. 28th, 1874.

MUSIC ON THE BAY, - - - - - - - *Walcott's Band.*

SALUTES.

DANCING.

COLLATION AT 12:30 P. M.

MUSIC.

RECEPTION ADDRESS. - - - - - *Dr. A. B. Stout.*

BENEDICTION, - - - - - - *Rev. Mr. Woodbridge.*

REGULAR TOASTS AND RESPONSES,

SPECIAL MUSIC, &c.

SONG, - - - - - - - - - *Madam Anna Bishop.*

EARLY HISTORY OF THE PIONEERS, - - - - - *O. C. Wheeler.*

QUARTETTE, - - - - - - - - *Amphion Club.*

SONG, - - - - - - - - - *Mrs. Marriner.*

'49 GLEE, - - - - - - - - *Bohemian Choir.*

SONG, - - - - - - - - - J. *Maguire.*

VOLUNTEER TOAST.

SONG, - - - - - - - - - *Louis Dochez.*

BALLAD, - - - - - - - - - *Alfred Wilkie.*

SONG, - - - - - - - - - *J. H. Savre.*

SONG, - - - - - - - - - *S. D. Mayer.*

DUET, from "William Tell." - - - *Messrs. Wilkie and Dochez.*

VOLUNTEER TOASTS.

RETURN.

MUSIC. DANCING.

The 25th Anniversary

OF THE

ARRIVAL OF THE STEAMSHIP "CALIFORNIA" AT SAN FRANCISCO,

Feb. 28th, 1849.

BILL OF FARE.

SOUPS.

Aux huitres.
Terrapin, a l'Imperatrice.

FISH.

Lobster, à la Italiènne.
Crabs, à la ville de Londres.

ROASTS.

Southdown saddle of Mutton, with raspberry jam.
Tenderloin of Beef, à la Washington.
Turkey, stuffed with truffles.
Chicken, à la Parisiènne.

ENTRÈES.

Faisan, à la palais de Wilhelmshoe.
Dinde truffée à la gelèe.
Jambon Westphalia à la gelèe aux raisins.
Paté de foi gras à la favorite de Rothschild.
Galantine de Poulet garnis à la gelèe.
Langue salée à la garniture de laitue.
Salade de Poulet.
Salade aux huitres.

RELISHES.

Olives, Celery, Radishes, Lettuce, Piccalilli, Anchovies.

CONFECTIONERY.

Ladies' Fingers.	Boston Cream Puffs.	Sponge Cake.
Pound Cake.	Mottoes.	Wine Cake.
Maccaroons.	Candies.	Meringues.

ICE CREAMS.

Vanilla, Strawberry, Lemon, Pine Apple.

Coffee, Tea, Chocolate, Lemonade, Wines, etc., etc.

MEMOIR.

Rather than attempt ourselves a general description of the events of the day, we prefer to accept the voice of the press, and therefore quote as follows from the *Daily Morning Call* of March 2d:

February 28th is memorable in the annals of our State. The surviving passengers of the steamship *California*—the first to enter the Golden Gate after the discovery of gold—celebrated their twenty-fifth anniversary by a trip round the bay, and by festivities on board the tough old craft which brought them to the Pacific Coast. This mode of celebration was happily conceived, and it was attended with all the success it deserved, making some reservation on the score of weather.

The Day and the Contrasts it Suggests.

Between the 28th of February, 1849, and the 28th of February, 1874, there is but a short span in the great viaduct of time, along which human existence has coursed. It has, however, been a period of intellectual and general advancement, such as has no parallel in the world's history, and that in the multiplicity of its achievements, almost defies survey. Within that quarter of a century are comprised surer revolutions in promotion of human well-being than were enacted or dreamt of in centuries preceding. It may be that in the ethics of life and the faith of which links the present with the hereafter, the world is not conspicuously higher; it may be that the grossness and social indelicacies of days not very remote, are still as they were twenty-five years ago, glossed over and made palatable by refinement; but materially a stride onward has been taken which knows no goal, and the gains in this direction civilization may well regard with feelings of ennoblement and pride. The initial and primal discoveries of the present and antecedent centuries have been utilized in the period specified to an extent perfectly marvellous.

There are long ages in human history throughout which men might have lived, even to the years of Methusaleh, and have noted no substantial difference between the things that were in the days of their youth and those that surrounded them in decrepitude; but this latter half of the nineteenth century is so remarkable in its changes, its discoveries, its activities, that were those who departed this life a generation ago resuscitated, they might

pardonably imagine themselves in a new world, with fields for research of which the most towering intellects had then only a distant glimmering. Preëminently this is an era in which all the conclusions of the ages that have rolled past are reprobed, adjusted, rejected, built upon; in which no department of the tangible is considered too vast or deep for inquiry and solution, and in which the subjection of Nature to man's purposes and its unravelment to his understanding seem to admit of no bounds. A mere glance at the triumphs within the memory of the living would require volumes to chronicle, and even a recital of the subjects would swell to the dimensions of a mass of reading matter.

In the prefatory generalizings above presented, there is an appropriateness in association with the record of progress which California to-day exhibits as the outcome of a quarter of a century's growth. Twenty-five years ago there steamed within the Golden Gate, the first steamer of the Pacific Mail Company, having on board the first arrivals of the adventurous, energetic band which flocked to the Pacific Coast in the eager pursuit of wealth. The allurement which attracted them hither has nothing lofty in itself to rank those whom it influenced into the heroes for all time that the Pilgram Fathers were; but the results which have accrued from their immigration shed a lustre on their name, which, as long as pride of country remains an essential of national life, will embalm their memories in reverent appreciation. They became settlers in a land that to them seemed little better than a wilderness, whose soil, on first survey, seemed to deny the necessaries of existence; and out of it have made a country that for fertility and attractiveness is as a garden to the other States of the Union, whilst for scenery and climate and natural wonders, it excites the admiration of all parts of the earth. They streamed into its valleys and spread themselves among its gulches, a motley ingathering from all races; and with the healthy inherent power of self-government and orderly cohesion which characterized the main body—the English-speaking portion—they founded a State which, by its steady advancement, gives manifest proof that its founders were men of large practical wisdom, and capable to devise and administrate. What California has become, it is unnecessary in San Francisco to describe. Many of the pioneers who helped to build up the State are still with us, and regarded with that enduring respect which those who live in other climes would find it difficult to approximate at its full measure. The retrospect from the present to twenty-five years ago must yesterday have been to the Pioneer a brilliant one, though to all, doubtless, accompanied by some sorrowful memories. Twenty-five years ago San Francisco consisted of a few adobe houses and tents, scattered around the Plaza or lining the beach of Yerba Buena Cove. This city, as well as the land, was severed from civilization by thousands of miles of ocean, by mountain chains and dreary far-extending wilds, only traversed by the trapper and the Indian. Communication with the world was a matter of probability, and at all events very uncertain. To-day the State has a population of nearly three quarters of a million, and its metropolis is a city of 200,000 inhabitants, blotting out in its regular ramifications the sand and chapparal of the peninsula, and already extending its outlying districts on the slopes of the Mission Hills. A railroad connects it with the East and

with the Atlantic Ocean. Interior routes join it with other cities of the State. Lines of telegraph bring it within conversation distance of the older States; and submarine cables give us speech with Europe, India, China, Australia and Africa, with the prospect that Puck's girdle round the earth will ere long be completed by the electric clasp which is to stretch across the Pacific to Japan. Fleets of the finest class merchantmen moor at our wharves. Two lines of steamers ply between our shores and the Orient. A third unites us with the islands of the Pacific and the colonies of the South. Coast steamers carry our commerce to all parts of America, South or North, laved by the Pacific. The Panama Isthmus scarcely divides us from the Atlantic seaboard; and trans-continental canal projects are destined at no distant day to be realized. With the position she holds, and with her history, California has ample reason to be proud; and of her future she has every reason to feel assured and buoyantly expectant.

The Excursion.

The kindness of the Pacific Mail Steamship Company in tendering the use of the old *California* will long be remembered by the Pioneers, for the sake of the happy memories called forth on treading again the deck of the vessel that brought them to the shores of the Golden State.

The vessel, from truck to bowsprit and stern, and from yardarm to yardarm, was gayly decorated with the National colors and the bunting of all nations, aptly indicating the cosmopolitan character of the people of our State. Evergreens were also displayed in festoons from the hurricane deck. At the appointed time for starting, the vessel was crowded to the utmost capacity of the main and hurricane decks. The wharves in the vicinity were lined with people anxious to catch a glimpse of the vessel and its excursionists.

The "California"

Is an ordinary side-wheel steamer of the pattern now in use, but short and low, compared with those of a more recent date. At the time she was built, however, she was ranked as an A 1 vessel, and one of the finest afloat. As an instance of the progress made in ship building during the last twenty-five years, it may be remarked that while the tonnage of the *California* is less than 1,000, the P. M. S. S. Company has at the present time vessels of 5,000 and 6,000 tons burden. It was estimated that there were no fewer than five hundred persons on board. As the steamer left her moorings, salutes were fired, the band played, and with the waving of "snowy scarfs" by the ladies, a very pretty sight was presented. The view was very fine on the return from Hunter's Point up the bay to Raccoon Straits. The air was clear, and the Coast range stood out in bold relief against the eastern background of threatening clouds. The expression "How beautiful," was frequently uttered, as a patch of sunlight would light up the green verdure here and there, forming a strong contrast with the cloud shadows on the mountains and the dark oak groves of Oakland and Alameda. All along the city front the wharves were lined with a black bordering of inquisitive humanity, and the echoes rang again to the firing of salutes from Alcatraz and the steamer and the joyous whistling of the

vessels in the harbor. Opposite Meigg's wharf the steamer was hove to in order to allow a photographer on the wharf to take views. After leaving the wharf and heading for the Straits, the wind blew so hard that the majority of the excursionists forsook the hurricane deck and went below, where an attempt was made to get up a dance, but with ill success, only two quadrilles being formed, on account of the crowd. At half-past twelve o'clock the Rev. O. C. Wheeler informed the passengers that as there was room in the dining room for only 300, and as nearly twice that number had been invited, the first table would be reserved for ladies and their escorts, and that those who happened to be neither ladies nor escorts, would be subjected to a little delay. This announcement was received with satisfaction by the former class, and with resignation by the latter. The collation was in every respect a decided success. The wines and other liquors were of unexceptionable home manufacture.

After the collation, which occupied over three hours, the musical programme was commenced, and lasted until the vessel returned to the foot of Brannan street. The singing, etc., took plsce in the dining saloon, but owing to the low ceiling, the vocalists labored under a serious disadvantage. The following programme was ccarried out with success, and the several artists and artistes were enthusiastically applauded: Song, Madame Anna Bishop. Quartette, Amphion Club. Song, Mrs. Marriner. '49 Glee, Bohemian Choir. Song, Louis Dochez. "The Bay of Biscay, oh!" Alfred Wilkie. Duet, from *William Tell*, Messrs. Wilkie and Dochez. Song, "The Days of '49," Mr. Barton.

The Banquet.

After the boat had been fastend to the wharf and most of the excursionists had departed, the Pioneers, with a few invited guests, remained on board, in order to appropriately close the re-union with a ceremony of which the drinking of toasts formed a prominent feature. Dr. A. B. Stout, the only surviving officer of the *California* in 1849, when she came round, presided, and offered as the first toast: "The Pacific Mail Steamship Company in the Pacific, our hosts in the past, our guests to-day, and our worthy ministers of universal hospitality." Responded to by Captain Kortz.

The following toasts were also given:

"The home management of the Pacific Mail Steamship Company. Its light is reflected in the brilliancy of its departments."

"The Army of the United States. Liberty without license, guided by discipline, the ornament and the defense of the Republic." Responded to by General Burns.

"Bohemia—The native land of science, art, and the belles-lettres; the cradle of the drama, the mother of wit, the germ cell of comedy. We enjoy now our High Jinks; may we never sustain a tragedy."

Mr. George T. Bromley replied to this toast in a happy manner, and was frequently interrupted by laughter and applause.

The Rev. O. C. Wheeler then exhibited a book got up by himself and Mr. Williams as a memento of the days of '49, containing incidents of the voyage of the *California* from New York to Yerba Buena, via the Straits

of Magellan, together with biographical memoirs and photographs of many of the pioneers. He had ten copies printed, and the typographical character of the book was of the highest order of art. He referred to a pioneer who was not present, but who had endeared himself in the hearts of all Californians by his munificent liberality—Mr. James Lick—and paid him a high and deserved compliment.

Other toasts followed, and were responded to by Major Wiggin, Dr. R. Beverly Cole, and others. The affair was in all respects a brilliant success.

The survivors of the *California's* passengers, as far as known are: Alexander Austin, Gen. Adair, E. T. Batturs, Oscar J. Backus, David T. Bagley, S. F. Blasdell, Lloyd Brook, Peter Carter, Wm. G. Davis, A. DuPrat, M. Fallon, W. H. Grattan, Richard W. Heath, John F. Joyce, Lewis Lillie, Augustus Mack, Albert Mack, Pacificus Ord, Asa A. Porter, Alfred Robinson, Henry E. Robinson, Charles E. Radcliff, A. B. Stout, Eugene L. Sullivan, D. W. C. Thompson, Wm. Van Voorhees, Rev. S. Woodbridge, Rev. O. C. Wheeler, H. F. Williams, Captain Hugh Whittell, Wm. T. Waters.

The various committees performed the duties allotted to them in a manner satisfactory to all. The following are the members: Reception Committee—Henry F. Williams, Alexander Austin, Eugene Sullivan. Deck Committee—Samuel F. Blasdell, A. A. Porter, E. T. Batturs. Cabin Committee—O. C. Wheeler, Captain Whittell, D. W. C. Thompson.

Among the persons present we noticed C. Walcott Brooks and a Japanese friend, T. I. Bergin, Arthur Hawkins, Sumner Bugbee, M. Daly, Judge S. C. Hastings, R. E. Raymond, Capt. M. R. Roberts, Dr. S. R. Harris, Arpad Haraszthy, Alexander Abell, Charles Kohler, Messrs. Bradley and Rulofson, Col. J. W. McKenzie, James De Fremery, A. Wilkie, Dr. Blout, David Scannell, S. W. Holladay, Prof. Joseph Le Conte, Sam. Brannan, D. J. Staples, Capt. Brown of the *City of Melbourne*, Dr. C. K. Breeze, Theodore Bradley, Oliver Eldridge. Sam. Osborne, Superintendent Denman, Tom. Madden, Mr. and Mrs. W. E. Dean, Captain and Mrs. A. M. Burns, Mrs. Lathrop, Mrs. McClellan, Mrs. C. C. Curtis, Wm. M. Lent, James Gamble, Capt. Macy, J. C. Raymond, J. Beard, W. Hayes. Alfred Wheeler, G. H. Gray, George T. Bromley, Tom. Marks, ex-United States Marshall Rand, Milo Hoadley, Chief Cockrill, Dr. R. Beverley Cole, Dr. Buddington, Cutler McAllister, Frank Kenny, Stephen Massett, Sam. Middleton, Alex. Austin, General H. A. Cobb, Judge Wheeler, J. M. Stow, Prof. Ezra Carr, Capt. John Mullen, Selden S. Wright, Dr. A. B. Stout and W. Kollmeyer.

Extract from the *Bulletin*, March 2d:

Toasts and Speeches.

The speech making was deferred until after the return to the wharf, and when most of the passengers had left for home. The survivors met in the cabin. Dr. A. B. Stout presiding.

Regular Toasts.

Our Republic—The Nation as one, and every State its builder.

San Francisco—With 450 population in 1849, and 200,000 in 1874—the fastest city which young America has produced.

The Pacific Mail Steamship Company on the Pacific—Our host in the past, our guest to-day, the worthy minister of universal hospitality. Responded to by Captain Kortz and Mr. Cutler McAllister.

The Home management of the Pacific Mail Steamship Company.—Its light isreflected in the brilliancy of its departments.

Responded to by Mr. Cox and Captain Kortz.

Pioneers of California—With or without membership in Societies to January 1, 1851.

Hale fellows, well met.

Our University and Colleges—Birthplace of liberty, order, and discipline. In peace or war the best defense of Freedom.

Public Education—Universal in its nature, unlimited in its amount.

Our Consular Guests—Our hearts are in unison with all nations.

The Envoy of Japan, Hon. Mr. Otori—I'll put a girdle round about the earth in forty minutes. Its electric spark shall be the fraternity of nations.

The Celestial Empire—Old and distant acquaintances are now near and best friends.

The Navy of the United States—The wooden walls of an old Republic are now the iron-clad monitors of the new. Let the navy form the wall and the army defend the rampart.

The Army of the United States—Liberty without license, guided by discipline. The ornament and defense of the Republic. Responded to by General Brooks.

The State Militia—The most reluctant to leave their homes, the most willing to return to them, and always their most devoted defenders. Responded to by Col. Wiggins.

The little 25 year old, 900 ton, side-wheel, wooden *California*, dips her flag to the fleet of iron propellers, and wishes them an equally long life—Captain Kortz.

The Ladies—Their sweet voice is the music of life. Responded to by Madame Anna Bishop.

Bohemia—The native home of science, art, and Belles lettres—the cradle of the drama, the mother of art, the germ of all comedy, may she never sustain a tragedy. Responded to by Mr. Bromley.

The San Francisco Yacht Club—Pioneer heralds of Neptune. The Coast Survey.

During the evening Captain Wiggins, the agent of the Pacific Mail Steamship Company, to whose efficient courtesy the guests may well be thankful for the enjoyment of the day, was called for. In his absence, the toast to his health was responded to by Robert C. Page in well-merited encomiums. The President of the First Steamer Pioneers, Dr. Stout, being called upon, replied in behalf of his

society, and gave a short address upon the *Shipping Interest of the United States.*

One of the pleasantest features of the day was the exhibition of a memorial volume, prepared by a committee of the "First Steamship Pioneers," beautifully printed on fine paper and handsomely bound, the work being from the press of H. S. Crocker & Co. It is the finest specimen of typographical art yet produced in our new State. It contains chapters on Pacific steam navigation, the Pacific Mail Steamship Company, the voyage of the *Falcon* (to connect with the *California*) the trip across the Isthmus, the voyage of the *California* from New York to San Francisco around the Horn, San Francisco in 1849, the country and climate, earlier pioneers, etc., together with biographical sketches of the First Steamship Pioneers. The book is very hastily gotten up, and the Editing Committee, like the man who had no time to write a *short* letter, found themselves unable to condense the hastily-prepared statements. Among the "Earlier Pioneers" noticed, are George C. Yount, Z. Branch, Captain John Paty, Peter Lassen, Isaac J. Sparks, Jacob P. Leese, R. Duncan, Dr. R. Semple, W. D. M. Howard, C. L. Ross, J. Lick, with brief mention of General J. A. Sutter, Thomas O. Larkin, Samuel Brannan, Jonathan D. Stevenson, Joseph L. Folsom, James W. Marshall, Edward Gilbert, and S. E. Woodworth. The biographical sketches of the *California's* passengers embraces notices of Hugh Whittell, L. Brooke, A. M. Van Nostrand, De Witt C. Thompson, Salisbury Haley, John Kelly, Rev. S. Woodbridge, Pacificus Ord, Hon. John McDougall, A. A. Porter, B. F. Butterfield, Peter Carter, Malachi Fallon, Wm. G. Davis, C. M. Radcliff, Richard W. Heath, Wm. Van Voorhies, Wm. P. Waters, Robert B. Ord, Rev. S. H. Willey, Samuel F. Blasdell, Alexander Austin, Henry F. Williams, O. C. Wheeler, Edwin L. Morgan, Rodman M. Price.

Most of these are still residents of this State, the home of their early choice, and many of them have been more than ordinarily successful in life.

The collation at 12.30 was opened by a short speech of welcome from the President, which was followed by a benediction from the Rev. Mr. Woodbridge, one of the pioneer clergy of the State. During the collation, the President offered with a few remarks, the first regular toast, and invited a response from Madam Anna Bishop.

"The Ladies, their sweet voice is the music of life."

The sentiment invoked one of Madam Bishop's happiest musical efforts, and was followed by a vocal concert in accordance with the programme.

Extract from the *Golden Era*, March 8th, 1874 :

Among a multitude of appropriate sentiments, "The Ladies" called forth a response from Madam Anna Bishop, who sang Stephen Massett's charming sea-song, "Our Good Ship Sails To-Night," playing her own most artistic piano accompaniment. This was followed by a beautiful song by Mrs. Marriner, and "The Bay of Biscay," by Mr. Alfred Wilkie. In answer to a spontaneous and general call for Mr. Stephen Masset, that genial and versatile gentleman recited, in his best vein, the splendid lines by Frank Soule, written eighteen years ago, and received with unbounded applause. Mr. Massett remarked that he had read the poem in almost every civilized land. Its effect, at this timely presentation, seemed truly electrical, and the outburst of approval was alike complimentary to one of the finest poets of the country, and his constant friend.

THE COMING RACE.

Hear you not the answer votive ?
  See you not progression's train !
Hear you not the locomotive,
  Thundering along the plain !
List ! tis coming, near and nearer ;
  Listen to its piercing scream :
Now the whirling wheels sound clearer,
  Now I hear the hissing steam.
Thro' the air, in transport gliding,
  Heed you not those proud huzzas !
Thirty sister States are riding
  Hither on those rushing cars.
Hither from each struggling nation,
  Weary exiles gladly roam ;
Give them here an habitation,
  Liberty, and friends, and home.
O'er the deserts wide and dreary,
  Thro' the terrors of the Horn,
They are coming, brave, tho' weary,
  Parents of a world unborn.
See ! they gather, man and master,
  Rushing to this Western world ;
Coming, coming, fast and faster,
  Daring danger, pain, disaster,
Seeking honor, health and gold.
  See, they come from every nation ;
See, our Temple is begun ;
  See, the men of every station
Meet and labor as of one !
  From the cities, farms, and ranches,
From the forum's wordy strife,
  Teeming from life's varied branches,
See, the welcome path is rife !
  Build a temple, high and holy,
Build a temple to the mind ;
  Broad and permanent, tho' slowly

Be its elements combined.
  Where the mighty and the lowly,
Happiness may seek and find;
  Beautiful then let us build it,
Vieing Solomon's of old.
  Raise its towering roof, and gild it
With our hearts' own native gold;
  Build it strongly—build it here—
Temple of the Pioneer!

A full description of the voyage around the harbor, the cheers, salutes and greetings at every point, the literary and musical programme, the banquet, and all the pleasing incidents and features of the occasion, would impart attraction to a page of the *Golden Era*. A memorial volume, prepared by Rev. O. C. Wheeler, Mr. Williams, and a committee of the "First Steamship Pioneers," attracted admiring notice, as a specimen of the typographical art. It contains chapters on Pacific steam navigation, the Pacific Mail Steamship Company, the voyage of the *Falcon* (to connect with the *California*) the trip across the Isthmus, the voyage of the *California* from New York to San Francisco around the Horn, San Francisco in 1849, the country and climate, earlier pioneers, etc., together with biographical sketches of the First Steamship Pioneers.

THE EVENING FESTIVAL.

Dr. Stout, *the President*, said:—

Ladies and Gentlemen: I have the honor again to meet you. The day's pleasure has passed, and we have safely returned to our harbor. And now, in passing around once more the cheering cup, we should consider the great advantage that we, as a small association of 15 or 20, enjoy, who have rather appeared as the types or emblems of former times, than possessing any consequence of our own. But it having been intimated to the Pacific Mail Co., that it would be agreeable to us if we could obtain the use of the *California* for an excursion, with that magnificent amplitude of heart which we had no reason to expect from a corporation, the Company, through Captain Higgins, the agent in San Francisco, immediately placed at our disposition this ship as you see her, manned, officered and coaled, and arrayed like Venus from her bath, all painted, cleaned, and elegantly decorated in honor of this occasion. We, therefore, propose to offer a toast: "The Pacific Mail Steamship Company on the Pacific, our host in the past, our guest to-day, the worthy minister of universal hospitality." I ask for a response from Captain Kortz.

Captian Kortz—Gentlemen: I can only say to you, that Captain Higgins, as well as myself, are very much pleased to greet you aboard to-day. We endeavored ever since Monday noon, in and about the job to try to make the first cruise of the *California* under these auspices a success. We endeavored to please all, not only the Pioneers, but the public of San Francisco, and have tried our best to make it a success, and if we have done so I should be pleased to hear it from you personally, or through the papers. Captain Higgins has done his best I must say, and I congratulate you all upon having been on board here to-day, and I hope you have enjoyed yourselves. Dr. Stout, the only surviving officer of our ship, I am glad to

see in the Chair—the ship I was third officer of twelve years ago. When the *Golden Gate* was burned I expected to come up on her, but I was prevented from doing so. Since then I have been first officer of the ship, until twenty-eight days ago, when I was appointed Commander, and I shall endeavor to fill that position with honor to myself and credit to the company she belongs to.

Mr. Cutler McAllister's reply—Mr. President: In the absence of Captain Edward Higgins, the authorized representative upon this coast of the Company you have complimented, I am selected to thank you for the kind expressions conveyed in the toast just given.

While the bearer of apologies for the Captain's unavoidable absence from this celebration of the day, on which, twenty-five years ago, the first steamship of the Company entered the portals of the "Golden Gate" and dropped anchor off the then desolate hills of Yerba Buena, I should also apologize for his appointment of such a substitute as myself.

Although I have frequently represented the Company upon other occasions, it has always been before that bulwork of liberty, the legal "twelve," called, and sometimes justly, "good and true" men, and while I received more profit, yet I assuredly experienced far less pleasure than upon this festive occasion, surrounded as I am, by the bright smiles of beauty and cheered by your kind words.

The representatives of the Company on this coast, while recognizing the merited compliment paid by you to the Pacific Mail Steamship Company, fully appreciate the fact, that to California and Californians, the Pioneers and their successors, the van and rear guard of the multitude that has flocked to this coast, the Company owes in a great measure its success.

Since this staunch old steamer with its living freight of enterprising and hardy adventurers entered San Francisco Bay, a quarter of a century ago, the Company has been sustained by the sympathy and support of the California Pioneers.

From the infancy of this Company up to its present maturity, from the time when it ventured forth with steamers, such as this one, to this time when its iron leviathans, embodiments of the highest native skill and genius, excite the admiration of the foreigner, and the triumph of the American, the interests of the Pacific Mail Steamship Company and those of the State of California at large have been identical.

While San Francisco, with unexampled rapidity, has taken her position as the fifth commercial city of our Union, this

Company has obtained and now holds a position far in advance of any other American steamship company.

The history of the Company, its voyages, its traffic, its steamers, its agents and its officers, are a portion of that of California, and are as household words to all of us.

How many of us have sailed with the genial Commodore Watkins, the perfect type of an efficient officer, a hospitable host, and a courteous gentleman? Who of us were strangers to the ability and fidelity of Captain Whiting? Who of us were ignorant of the capacity and trustworthiness of Captain Pierson, or failed to admire the gallant intrepidity of Captain Dall? I speak not of the living, but only of those who have gone before and cast anchor in the peaceful haven of eternal rest.

At various times, during the last twenty-five years, we have awaited the arrival of some steamer of the Pacific Mail Steamship Company, which was to bring to us some dear friend, or some cherished member of our family circle, such as a father, a mother, a wife, a sister or brother, or perhaps a sweetheart, not of the family circle *in esse*, but *in posse*, and how seldom have we been disappointed during all these many years by any irregularity or delay in such steamer's glad arrival.

I speak to you of the past career of the Company, which has grown with the growth and strengthened with the strength of California, of old California, as distinguished from new California, the California of the present. There never was a young California, she needed no Territorial government, but sprang, without any intermediary life or training, into the complete and perfect vigor of a sovereign and sister State.

I speak of old California when the unit of value was the slug or the ounce, and when we all had more of them than we could spend; not of the present, when the unit of value is the dollar, with no superabundance of coin in the country. Of old California, when the presence of a lady created an intense excitement on the street; not of the present, when you can see more pretty faces on Montgomery street in a given time than in any other city on the globe.

Upon being requested by the worthy agent to represent him to-day, and knowing that a speech made anywhere inside the "Golden Gate" must be intensely Californian, I consulted the best authorities upon that subject: "Dwinelle's Colonial History." "Hawes Consolidation Act," "Judge Hoffman's Land Decisions," "Phœnix Survey to Mission Dolores."

From these I gathered nothing that I have not heard at every public dinner ever given in San Francisco, but these

authorities all agreed upon one fact, which I know you will admit, that San Francisco is the largest city *of its size* in the United States.

In my researches, not only among written but also among living authorities, I gathered a portion of the unwritten history of our State, which I regard as peculiarly appropriate to this occasion.

While in the spring of 1846, the American and Mexican armies were facing each other in hostile array upon the Rio Grande, two fleets were lying at anchor in the harbor of Mazatlan, each anxious, upon the commencement of hostilities, to seize Upper California for their respective governments.

One of these bore the Cross of St. George, under Admiral Seymour, the other was the American fleet under Commodore Sloat.

After awaiting for some time the arrival of news, Commodore Sloat concluded to close upon the prize, so he sailed out of the harbor of Mazatlan in the frigate "Savannah" ostensibly for the Sandwich Islands, and kindly offered to take for the British Admiral any letters or dispatches he desired to send Kamehameha.

Deceived by this ruse, John Bull piped to meals as regularly, and enjoyed them as heartily, as if Brother Jonathan had not "played him," and, some days after, having ascertained the little game, Admiral Seymour weighed anchor and started in pursuit.

Upon the 2d of July, 1846, Commodore Sloat arrived at Monterey, finding there the sloops of war *Cyane*, *Warren* and *Levant*.

On July 6th, the Commodore received a communication from Captain Montgomery, then commanding the sloop of war *Portsmouth*, in the harbor of San Francisco, asking whether he should furnish aid to Fremont, who had been defeated by the Mexicans, and who asked for assistance from our naval forces. At first, Commodore Sloat determined to take no affirmative action until fully informed that hostilities were actually commenced between our own and the Mexican government, but yielding to the urgent solicitations and representations of the younger officers of the fleet, finally agreed to take possession of Upper California, and to place the same under our flag.

Accordingly, on the 7th July, 1846, Captain Mervin, of the *Cyane* landed at Monterey with four hundred men, and took possession of the country in the name of the people of the United States of America. Purser Price read the Commodore's

proclamation to the citizens, and Captain Higgins, the present agent of this Company, who to-day represents it upon this coast, climbed the custom-house flag staff, rove halliards, and with his own hands hoisted the stars and stripes over this land, by which act it became ours and our children's.

I need not tell of the surprise of John Bull as he entered Monterey harbor, and found that Uncle Sam had already "squatted," and acquired "*possessio pedis*," and I need not explain to those lawyers and judges whom I see here, that under the Van Ness ordinance, particularly when backed by the ordnance of the men of war, the possession was good and legal.

However, we have held California ever since, and not only has the possession thus taken ripened and borne fruit which we and ours now enjoy, but it has been of momentous import to the whole country.

Its acquisition has been followed by a great American settlement on this western coast, establishing at this advanced outpost of civilization, in the place of political disorder and distracted rule, well regulated institutions and wise government; in the place of a lazy and worthless population, American energy and American enterprise, and, in one word—in the place of the Mexican the *Anglo-Saxon*.

California has also placed us in favorable proximity to the rich commerce of the East, and will enable us, if true to our destiny, by and through the facilities afforded by this great Steamship Company, to compete successfully with the rest of the world for this rich and abundant traffic.

What may we not confidently hope for this metropolis of the Pacific in the future?

The outlet of a land which God has so fully blest, where Nature pours forth her stores, and the Earth opens her treasures, surpassing the rich imaginings of ancient fable, with its masterly position, unsurpassed climate, its inland trade, its glorious harbor, its coasting traffic, its foreign commence, without a rival and without a peer along the vast western coast of the Pacific. Proud and pre-eminent, she stretches forth one hand to grasp the countless wealth of the interior, while with the other, "like Venice, she weds the everlasting seas."

The Chairman—While we have so good a feeling for the Pacific Mail, I cannot let this opportunity escape of giving her another shot. And we have a gentleman on board who I know can respond to it well. I will offer this toast: "The home management of the Pacific Mail Steamship Company;

its light is reflected in the brilliancy of its departments." I will call upon Captain Cox for a response.

In reply to the toast, "The Home Office of the Pacific Mail Steamship Company," JENNINGS S. COX, the Special Agent of the Company, from New York, replied:

Mr. Chairman and Gentlemen of the Society of the first Steamship Pioneers:

In rising to attempt a response to the toast you have just heard, I feel most sensibly my utter inability to make such a reply as the occasion calls for. The Home Office of the Pacific Mail Steamship Company certainly *deserves*, and should *have*, a better man to answer for it than I am, and I deeply regret that its worthy manager, Mr. Rufus Hatch, is not here to do justice to this sentiment.

When the telegram, asking whether you could charter the old *California* for your celebration reached New York, I was with Mr. Hatch, and, immediately upon reading it, he turned to me and said, "Telegraph Captain Higgins to have the *California* fitted up, coaled, and officered, and tender her, *free*, to the "First Steamship Pioneers" for their use on the 28th February." When I wrote the despatch I little dreamed of being present on this occasion—much less of being called upon to answer for the "Home Office."

I am a stranger to San Francisco and its people, or rather, I *was* a stranger a few days ago, but the generous hospitality extended by every one I have met, has already made me at home with you, and really I feel now as though I were speaking to *old friends* who will "hear me for my cause," and bear with me while I talk to them about something they know a great deal more of than I do myself.

The Pacific Mail Steamship Company has been an institution of San Francisco since its earliest days—they were both born about the same time, and have grown up together. The history of the Mail Company is closely interwoven with your own, and, from the day this good old ship landed its precious freight, that history is as familiar to you all as a household word.

I wish I could say that the growth of the one had been commensurate with that of the other. You know how it used to be when the hatches of these steamers were bursting with freight, and their saloons and decks swarmed with passengers. For a long time they were the only link connecting you with the homes and loved ones you had left behind you. You watched with tearful eyes the *out-going*, and hailed with loud

huzzas the in-coming vessel. You learned to love the old line; to feel a personal interest in its welfare, and to resent any word spoken against it. I find that feeling of affection still continues; you still feel the deepest interest in its well-being—it is still a *pet* with you.

True, it is not what it used to be in some respects. Of late years various causes have combined to dim somewhat its old glory, and mar its former greatness, but I am happy to say that within the last year it has fallen into the hands of those who are determined, if possible, to restore its ancient honor and renown, and make it once more a successful and popular company. It has for its President, Mr. Russell Sage, of New York—a leading business man of that city—of large experience, sound judgment, and good managerial ability. For its Vice-President and Managing Director, Rufus Hatch, whose quickness of perception, indomitable will, untiring energy and perfect mastership of the situation, has already started the stagnant blood in the old veins, and caused it to flow again from the heart to the extremities, as in the days of yore. In its board of Directors are practical steamship and transportation men, and all of them are business men of high standing, well known and popular. Their desire is to make the line a success *in everything*, but they realize the magnitude of the undertaking, and require the hearty co-operation of those whose servants they are—the business and traveling public.

Especially are they aware of the fact that this is one of the most important points of the Company's trade. It is essentially a *Pacific Ocean* Steamship Company, and it is to you they look for that support without which the line can accomplish but little.

They owe it to you in return to make the line *first-class in every particular*, and they propose to do it. It is not enough, as they are well aware, that the interests of San Francisco and the Mail Company have always been identical—that its steamers carry the old flag we all love so dearly—that its ships are almost the last surviving remnant of a merchant marine whose sails once whitened every sea. These are strong reasons, and appeal to the heart of every true American; but these are also practical times we live in, and patriotic feelings yield to motives of interest. To be a success now, the line must be ably managed, prepared to meet all competition, and fight to the bitter end all foreign opposition.

A few weeks ago you had an opportunity to see and inspect the Company's new iron propeller *Colima*, built by Messrs. John Roach & Son, of Chester, Pennsylvania, having com-

pound engines and all the latest improvements in steamships, with a carrying capacity of 3500 tons, and accommodations for over 600 cabin and steerage passengers. A similar iron ship, the *Granada*, built by Messrs. Harlan & Hollingsworth, is now on her way here from New York. Three more, the *Colon*, *Acapulco*, and *City of Panama*, are already in commission, and running between New York and Aspinwall. The *City of Guatemala*, (a sister ship to *City of Panama*, of 1,700 tons,) and the magnificent steamers, *City of Peking* and *City of Yedo*, are building, and will be finished this spring. The *Peking* and *Yedo* will be, each, 421 feet long, 47¾ feet beam, 6,000 tons capacity.

Here are eight new iron propellers, surpassed by no steamers afloat. Four of these—the *Peking*, *Yedo*, *Colima* and *Granada* will be added to the five side wheel, wooden steamers already on the China line—making nine in all—and the present intention is to start a ship from each terminus of the route every other Saturday, giving you a vessel for China and Japan every two weeks.

The *Panama* and *Guatemala* will be placed on the Pacific Coast trade, and as fast as the Company can build iron steamers it will replace its wooden ones, until it has the finest fleet of iron ships in the world. Nor does the management intend to stop there. It proposes to make its ships the best managed and safest of any afloat—to officer and man them with picked men—to look especially after the welfare and comfort of those who may travel by them, and to surround the passengers with the table and other luxuries of a first-class hotel—to offer every inducement to shippers, in the way of cheap rates, careful stowage, handling, etc., and, in short, to let no line excel it in the facilities offered for safe and pleasant travel, and cheap and rapid transportation.

The Company's part of the bargain will be carried out if the present manager continues in office. Give your assistance and success is assured. Already the ships of the Mail Company steam in their round voyages 28,000 miles, touching at seventy ports, and entering the dominions of six different countries, but the trade with the East is yet in its infancy, and the desire of the management is to make the inducements so strong and facilities so great, that a few years will see it doubled and trebled.

But I am trespassing upon your time and patience. Permit me, however, before sitting down, to congratulate you upon this happy occasion, and to wish that all who passed with you through the Golden Gate and into this magnificent

harbor, were here to enjoy the day with you. Well may you feel proud as you gaze over the waters to yonder beautiful Queen City of the Pacific, and well may I, a stranger, look upon it with wonder.

In twenty years it has sprung from a few small cabins to a metropolis of over 200,000 inhabitants. Your foresight, energy and perseverance have done this. You, and those who came to California about the same time, opened up and developed this wonderful and beautiful country—for it stands alone in its glorious perfection. Where, on this continent, or any other, will you find such majestic old snow capped peaks as the Sierras ?—such deep cañons, lofty water falls and towering mountains as in the Yosemite ?—such large and fertile valleys as the Joaquin and Sacramento ?—such giants as the trees of Mariposa ?—such exhaustless mines of silver and gold ? —such perfection in the size and flavor of fruits and vegetables ?—such variety of climate and fertility of soil ?—such orchards and wheat fields ? such grazing grounds and fruitful vineyards ?

And, above all, where will you find such a race of men ?—men who have builded cities in a day—who have emptied the earth of its treasures to enrich their common country, and fed nations with their harvests of wheat—who were the first to start the iron girdle which clasps the continent, by projecting and building a railroad, whose grades, curves, snow sheds, tressle work and bridges are the greatest engineering achievement of the age. I say it again, gentlemen, you may well feel proud of the work of your hands, and the homes you have reared. Long may you live to enjoy them—to see this city rival the great metropolis of the Atlantic coast in size, wealth and importance, and your coast studded with Bostons and Philadelphias and Baltimores and Charlestons. May your children grow up, inheriting your noble traits of character, and perfect the work you have so well begun and brought thus far towards completion. They can never feel a disposition to wander from such a home. No elderly friend with roving proclivities can whisper in their youthful ears those ominious words—"*Go West!*"—but, joining hands with you, they will make this land of the setting sun the brightest diadem in America's coronet of States.

Gentlemen, I thank you from the bottom of my heart for your kind invitation to be with you to day. Of the many recollections I shall carry home with me none will equal the remembrance of this interesting occasion—I shall never forget it, and I sincerely trust you may all live to enjoy the

Golden wedding-day of your honored society, and your feet again tread the deck of this good old steamer *California*, which so safely brought you to these lovely shores!

Captain Kortz responds—Mr. President, the present administration of the Pacific Mail Steamship Company is different from the past, and the agents and subordinates here generally, including Captains, officers, and subordinates on the deck, I will say, realize the fact that they are here for the purpose of serving the public, in such a way as to give general satisfaction. It is the object of the Pacific Mail Steamship Company, and so I may as well inform you here gentlemen, to control this coast from San Francisco to Panama. [Applause.] There is no reason why they should not do so. They should have done so for years past, and it only wanted the energy which I think now we have in Captain Edward Higgins, and if you feel satisfied to toast that gentleman, I am with you. [Applause and calls for Captain Higgins.]

The Chairman—One of the points of our excursion to-day and of our festivity to night was, to show honor, respect, and fraternal feeling to all nations, and we invited in consequence, the Consuls of every country, who were represented in the city. Very few of them have been able to come, and some who came have gone; but I shall nevertheless give them a toast we have prepared for them:

"Our Consular guests. Our hearts are in unison with all nations."

Captain Kortz—In behalf of the different consuls I will only say that I hope in the future the American flag may have more spread upon the Pacific Coast than formerly. Our trade for the last five years has been done mostly by English bottoms. I have seen American ships lie here five or six months in the bay, unable to get a cargo. I hope that all of you gentlemen connected with commerce here, will endeavor to build up American shipping on the Pacific Coast. [Applause.]

The Chairman—I will now offer you, "The Army of the United States; Liberty without license, guided by discipline, the ornament and defense of the Republic."

General Brooks—Gentlemen, I regret extremely that the Commanding-General is not here to-day. I am satisfied he

would have been if his duties would have permitted. In the meantime I regret extremely that I am called upon to respond on such an occasion, but inasmuch as I have been asked to respond, I will do so without any further excuse. It has been very gratifying to me, to meet you here to-day. You are the Pioneers of this country ; I do not wish to speak of myself ; I am not, as it were, in communion with you, but nevertheless, I may claim the privilege of calling myself a Pioneer, because of my connection with the old Mexican war, the foundation for the acquisition of this territory. At this day we may allude to this war without affecting the feelings of any individual ; for myself, I have no feeling whatever. I look at this thing in a military point of view. It so happened, without referring to myself, that I was happy enough to be assigned to the execution of the duty, which the Government saw fit to give me in Mexico. I entered Mexico as a young Captain of the Second Artillery. I went through all the battles there from Vera Cruz to the City of Mexico ; and it was my fortune to come out in command of my regiment ; and therefore, without expatiating upon the matter, I have some claim possibly to be called a pioneer. Immediately after that I was sent to New Mexico. You know that the result of that was the addition of the whole territory from New Mexico, west. I am not a pioneer in the sense you are. I understand this steamer was one of the best of her time. But 25 years in this country makes a vast difference, but as I understand from gentlemen here. this steamer was admitted by the naval or military authorities at the time she was built, as being the steamer of the age ; and when she was brought upon the coast she was received upon the condition that under certain circumstances she might revert to the Navy of the United States as a naval steamer, and I understand furthermore, that it has cost from $80,000 to $100,000 to restore her to her original state, so that now she is in a condition to take any position which her honored and excellent captain may be called upon to give her.

Gentlemen, I am not able to sympathize with you in your feelings on this anniversary, because I have not been with you ; but I hope hereafter I may have that pleasure. I occupy a position that I am proud to fill, and I would be very glad to meet with you again. When we came on board, the ladies told me they were fearful of the steamer. Why, they said, she has been laid up for years; but I am informed by the best authority that the steamer has been remodelled from stem to stern; that there is not a plank in her that is not perfectly

sound; that the whole machinery has been entirely remodelled, so that there is no vessel on the coast that is to-day more safe and secure. [Applause.] She may be old, and she may be of an old pattern, but it is the pattern that the United States agreed to assume in case of any necessity on this coast. We know that in twenty-five years, in a country like ours, there is a great revulsion in politics, a great revulsion in the navy, and a great revulsion in commercial intercourse. But we are able to-day to hold our own in competition with the commerce of the world. I understand there have been one or two large ships built here; I understand we are getting iron ships, that our manufacturers of iron are producing wonderful quantities; they are producing that immense machinery that brings into requisition the highest degree of mechanical skill in the country. There is no doubt about it, gentlemen, we are bound to succeed. You, gentlemen, have been able to watch this progress; you came out here when government on the Pacific coast was first inaugurated, and when you landed here in 1849 what was before you? What did you expect? What was there here to attract you? And what is there here now? What does this day disclose? Are there not evidences of progress all around us? This beautifully decorated vessel, this magnificent entertainment, the beautiful ladies we have seen here to-day. It is not for me, gentlemen, to go into millinery [Laughter]; I don't know anything about it. I have no doubt there are some ladies here that wouldn't pretend to appear in public unless they have a dress that costs them less than $500 or $600 [Laughter]. I have a girl behind me here who told me the other day, "Why, father, don't talk about $200 for a dress—$300 is not sufficient." But I don't cite this, gentlemen, as an evidence of progress [Laughter].

Gentlemen, this steamer is to-day refitted and reorganized, and it is a matter of congratulation that she exists to protect this territory, and bear the guns of the United States in case of war. I congratulate you, gentlemen, upon your pleasant social reunion, upon the magnificent city that you have, lying upon the finest harbor in the world—all forming an accumulation that forbids me to make any further remarks [Applause].

The Chairman—There is something, sir, that has not met your observation, and I desire, with your permission, to present it before you. A new element has arisen in this community, which, perhaps, as you say you are a recent arrival, has not appeared before you, and I am called upon to introduce it

to you. It is the element of civilization and progress, of which you have already spoken, and I will announce it in as few words as possible, and I think you will bear the result.

"Bohemia: the native home of science, art, belles letters—the cradle of the drama, the mother of art, the germ-cell of Comedy; we invoke now her high genius, and hope she never sustain a Tragedy." I would ask Professor Bromley to respond.

Mr. Bromley—Mr. President, Ladies and Gentlemen: It strikes me that, after a sentiment of that extreme length, a speech would be entirely out of order [Laughter]. It is somewhere written "Blessed is he who hath nothing to say and can not be persuaded to say it." I was anxious of being entitled to that blessing until I arose to my feet, and now, as you observe, I have forfeited it. But, Mr. President, I have never felt a stronger desire to make a speech than at this present time, and never have been more at a loss what to say. I would love to talk of Bohemia, but I miss the familiar faces and the jolly surroundings that are so necessary to my youth and inexperience, in order to say what I would like to say; and it seems to me that there is an impropriety in the sentiment at this particular time, for whatever claim the Bohemians may have to Attic salt, salt water is not their favorite. In fact, they are not particularly partial to water of any kind; but I will say, gentlemen, in the name and in behalf of the officers and members of the Bohemian Club, and tender you their most heartfelt thanks for the demonstration with which the sentiment was received by you.

You will remember, Mr. President, a few days since, when you informed me that I might possibly be unexpectedly called upon to say something at this meeting [Laughter]. I immediately made haste to prepare myself for the unexpected surprise; and that night I retired to my innocent couch and endeavored to collect my random ideas; and as I gave loose to the reins of thought and meandered through the circumambient sky, and just as I was lifted into the scenes so necessary to prepare me for the occasion, I received a gentle nudge from the partner of my joys and sorrows, inquiring whether we should have hash for breakfast, or the beans fried over. Mr. President, the transition was terrible. Every impulse of my mind induced me to exclaim: "No beans," and beans or no beans was the question that agitated my bosom; and consequently I have not yet prepared to make the speech that I intended to make, after the gentle reminder you gave me

But I have somewhere read, permit me to say, that some patriotic individual remarked, "Let me but make the songs of the people and I care not who makes the laws." And with him, Mr. President, I can say: "Let me but participate in festivities like these and I care not who pays the bill." [Laughter].

Mr. President, I congratulate you upon this auspicious occasion, and the society over which you so stoutly preside. [Laughter]. This is certainly one of the most important anniversaries that has ever been celebrated in connection with California, and these anniversaries and social reunions are becoming a prominent feature in California social life. How often we see in the papers the calls for old residents of Tuolumne and Placer, and all those counties, and fellow passengers on sailing vessels in the olden time, and those who have been connected with enterprises, called together in social reunions. And that reminds me of an enterprise that I was once connected with in early times, and with your permission I will mention it now. The object of that was the pursuit of hides and horns in exchange for groceries. The company consisted of Bob Parker and myself; the capital, like many English corporations, was limited. I may say it was exceedingly limited: but at the same time Commodore Woodworth, having implicit confidence in the success of the enterprise, tendered us the use of the sloop *Red Rock*, which was a fore and aft sloop of about ten or fifteen tons and a half; and she drew more water in one night than Bob and I could pump out in the next day. We played the game of seven-up every morning to see who should be captain, and whoever won the game took charge of the sloop and the papers. A little incident occurred which I will take a few minutes to relate. We were on our return from Napa, where we had been to establish an Indian agency for the collection of horns. On our way down we were getting shot of small stores, and we put into Vallejo to get some mustard. We were kindly received by General Vallejo, who attended to our wants, and upon leaving the old General I tendered him six bits, being all the amount of money in the hands of the disbursing officer at that time. He gazed upon the coin and seized my hand, and convulsively and with trembling lips and stammering tongue, he welcomed me as the first settler of Vallejo. He said: "Many have been here, and have taken all they wanted, but they never settled." [Laughter]. And as we left that town we passed through Raccoon Straits and the Straits of Carquinez, down through San Pablo Bay. The fog shut down, in nautical language, as

thick as burgoo. I was at the helm, Bob was on the look-out; for on playing the game that morning we were six and six, and it was my deal, and I turned Jack and took charge of the sloop. And as we were rolling down the bay, scudding under jib-stay and top-lift, Bob exclaimed in a voice of thunder and lightning—(Jersey lightning)—"Hard up your helm!" Mr. President, if there is any one thing I knew more about than another it was "hard up." I had known it before, and I have known it a great many times since. I put the helm hard-up, and we just cleared Red Rock by about two miles and a half.

And, Mr. President, it is by this interposition of Divine Providence that I am with you to-night. I thank you for your kind attention to my speech. [Continued Applause.]

The Chairman—After that reminiscence of the early navigation in California, which I think is a very excellent subject of nautical science at that time, I will now call upon Mr. O. C. Wheeler, to announce to you, gentlemen, what he may possibly know of the condition of the country at that day.

Mr. Wheeler—Mr. President and Ladies and Gentlemen, and Brother Pioneers: Called upon to tell something of the early times, one could scarcely have a better text to speak from than what we have just heard from Captain Bromley, and especially while he was Captain of that noble vessel. And the text should bear the same relation to the sermon or discourse that Doctor Jenkins did, of Richmond, Virginia. He preached in the morning a somewhat interesting discourse. He met a deacon at the foot of the stairs from the pulpit. He was a very absent-minded man, and always saying things he didn't mean to. The deacon met him, and said, "Well, doctor, we have been interested this morning." "Yes," said he, "I know you must have been interested, and yet I didn't seem to get anywhere, and it was very difficult for me to make out anything in my sermon; but this much I know you will say, that whatever you may say of the text, the sermon was a good one, and may the Lord bless the eternal truth, for Christ's sake."

Now, I suspect that the text will bear about the same relation to the sermon that the doctor's did. It was my fortune to land here twenty-five years ago to-day. Many things I then found here, and many things that have happened since that, have passed from our memory; and, two years ago to-night, I suggested at our anniversary the propriety of a little pamphlet of our experiences, and some few ideas pertaining to ourselves,

as individuals passing rapidly away, as we were, that we might leave something on record. The idea was at once met with favor, and a motion was made that I be appointed to the service of preparing that. I consented, on the condition that the Secretary of the Association, Mr. Williams, should be associated with me, and we to constitute that committee, which was agreed to. We asked that the members of the Association should furnish to this committee data from which they might prepare some little biographical sketches to be read this evening. The members of the Association present promised to do so. One year passed. Mr. Williams and I had gathered various facts, but none of the members had furnished any data. The matter was then presented again. The committee reported progress, and every member present promised, with much enthusiasm, to furnish the committee with data pertaining to himself, to enable the committee to prepare a pamphlet. The committee waited with great patience till the 15th of December, and no one of the members fulfilled that pledge in any sort of way. A circular was then issued, asking a few questions upon which some sort of outline might be drawn of the course and progress to success of any individual who would answer it. Our list included fifty-two individuals that we supposed to be living. We addressed to each of the fifty-two individuals a circular, and to those circulars I believe twenty-three responded, furnishing something of a foundation upon which to prepare a short memorial. The committee, in the prosecution of their work, were led out in various directions.

We came here upon the first steamer on the Pacific Coast. Suggesting the idea of steam navigation of the Pacific, and the steam navigation of the Pacific was wrought into a chapter. Though not the first steps in it, still the first successful steps have been taken by the Pacific Mail Steamship Company. That Company necessarily formed a preliminary chapter. The trip of the passengers who left on the Aspinwall steamer on the other side, constituting the direct line through, on the 1st of December, 1848, three days before the gold news was published at Washington, furnished another chapter. The scenes on the Isthmus another; and then the voyage of this ship from New York, by way of the Straits of Magellan and Panama to San Francisco, furnished another. And what we found here in regard to the town, necessarily had to be written up, and constituted another chapter. And the country about here, and the climate of the country we landed in, was necessarily the next subject. Whom we found in that country as earlier pioneers, were suggested at every step of our progress, making

another chapter. And then we reached the point at which we could preface what we had originally intended as our pamphlet, to begin to write something about ourselves. The tenth chapter is a contrast between California in 1849 and California in 1874. I have brought with me here, to-night, a copy of this pamphlet, to give you some idea, not merely of what we as a committee have done, but to show you, in direct accordance with the remarks of my venerable friend from the army, on the subject of California progress, what has been done on this coast, and it is that that gives me pride in showing you this pamphlet. We have here a book of four hundred pages. Men best qualified to judge have told me to-day that it cannot be surpassed, and never was surpassed in the market, in its typographical execution; in all that pertains to its mechanism in every particular—that it is nowhere surpassed in the world of book-making; and this was prepared from the first word, the first sentence, the first paragraph of its writing, to its present position, in forty days and forty nights past. And I must be pardoned for saying that my excellent wife there has done the work. [Applause: during which the health of Mrs. Wheeler was drank with much enthusiasm.]

We have the biographies as thoroughly as they could be prepared from the memoranda sent by the twenty-three I mentioned. We have one plate that combines the photographs in a most beautiful medley, as you have seen, in a frame, a little enlarged, of twenty-seven of our fellow passengers. Every one that could be induced to send his photograph to the Committee, or set free of expense at the artist's and have his photograph taken, every such one appears in that picture. They are not yet inserted in the book, because I could get but two volumes this morning. In one of the full pages is the old steamship in the middle, and the twenty-three men around it who furnished their portraits. And we left out Dr. Stout, our President, and only surviving officer, that we might give his face a full page, which we have done. [Applause.] We have a plate of the old steamship. We have a portrait on a full page of William H. Aspinwall, the first President of this Company, the portrait of William H. Webb, the builder of this ship; and a view of San Francisco or Yerba Buena as we found it in 1849; a view of Sutter's Fort as it was in the days of its perfection; a view of Sutter's Mill, with Marshall picking up the first piece of gold out of the mill-race where he had found it, and where he showed me personally he did pick it up; and I saw the piece; we have a page plate of the first steamboat passing up Feather river, passing Hock Farm, the residence of

General Sutter. I was going to say, next to the work of my good wife in the preparation of this book—I was going to say, next to that, the pride of my life, though perhaps it is a little beyond that—a page portrait of the first Protestant church edifice that was built in California. On the 2nd of July, 1849, I turned the first auger, and bore the first hole, and made the first mortice in that frame, and followed it through, and in twenty-two days we had a church edifice, 30x50 feet. We were indebted to a brig in the harbor for the foresail to cover it with, but it was the first Protestant church edifice ever built in California. It cost us over $6,000 in gold. I drew with my own pencil the home after it was erected, and its surroundings, and that has been photographed and will appear in the book. We have here sketches of some ten or twelve of the earlier pioneers, one of whom we fondly hoped might be able to be with us to-night; and we were sorely disappointed that he was not with us a year ago to-night.

And I must refer to him because in certain points of light none of you will take exception to it when I say he has no equal in California, which is equal to saying he has no equal in the world—James Lick. [Applause.] Starting from the back-woods of Pennsylvania where we find him planning and arranging his future course, which caused him days and nights of labor of mind and body to execute. In a few years we find him on the Pampas of South America supplying from his herds the Commissariat and the armies of Brazil and Buenos Ayres with horses and beef; on the other side of the continent at Valparaiso, silent as the plow that turns the sod, we find him upturning and upheaving enterprises that filled people with astonishment; then the news came that gold was discovered in California, and we find him with a pluckiness and a decision scarcely equalled anywhere, and never in my acquaintance, having a business, that would have taken any ordinary business man a series of months, to have so arranged as to leave in a few hours; he threw everything into the hands of a trusty friend, put doubloons enough in his trunk to amount to $20,000, and stepped aboard of the first vessel coming to San Francisco. When he got here he realized exactly what he anticipated. If there was gold here in the mountains there were corner lots here in the city and opportunities for investment here; and the $20,000 that he brought with him bought property which to-day you cannot buy for $20,000,000. When John B. Weller was talking in the United States Senate and saying: "I wouldn't give six bits for all the agricultural land there is in California," James Lick was laying the foundation

of a flouring mill that cost him before it was completed more than half a million of dollars. He believed that there was agricultural land here, and he now, having gone beyond the period of man's existence, quietly retires to his little cottage on Montgomery street that has the best dining room in the world, and spends his time, how? Not in seeing how he can more tightly tie up his purse strings; not seeing how he can more securely transmit to his posterity his earnings; but the whole world is astonished, as we hear one morning that James Lick has donated to the Society of California Pioneers, and to the Academy of Sciences, each, a lot that he could have sold for $120,000, and put the money in his pocket—making however, as some thought, very onerous exactions in connection with that, stipulating that each of those organizations must build in a certain way, a way that they could not build. And more than that, he didn't intend to let them build. They struggled on for a season and then said that they did not know how to do it, and the acting President of the California Pioneers said to him: "Mr. Lick, we can't do it, the plans will have to be modified, or we shall be obliged to modify it." "Well," he said, "I knew you could not." "Well," said he, "but you didn't mean to be fooling us?" And then he said, "Well, we will see about that, Mr. Staples." And in a little while the negotiations are pushed forward, and Mr. Lick carries out his own plans for the buildings, and gives the money to put them up, and when he has paid those bills, he will be minus more than a million dollars in gold. Furthermore, he had scarcely reached that point when he says: "It seems to me something ought to be done still further for science. Von Schmidt, you go up to the mountains and see if you cannot find a place for an Astronomical Observatory—an accessible place, and where the air will be clear." The place is found, the observatory is founded, and the directions are given for its building, and Mr. Lick will be out another million of dollars when it is done. I say it has afforded me immense pleasure to aid in the preparation of a memorial to such a man as he. And then it has been exceedingly pleasant to record the acts of some of our Pioneers, that at the time have seemed most wild and hazardous. Twenty-five years ago to-day there put off from the shore as we dropped anchor here in the bay, two men, each of them in his boat, with his oarsmen, seeing which could reach the *California* first. It had been a matter of emulation on the part of those two men—the heads of two rival commercial houses in Yerba Buena—and a matter of great importance, when a vessel arrived in the harbor, which was a

matter of seldom and uncertain occurrence, it was a very important matter for either of those men to reach the supercargo first. And they kept for that especial purpose each of them a boat with the best set of boatmen they could obtain. One day it was announced, just before we came in, that a brig was coming in. In the shortest possible time W. M. B. Howard took the tiller ropes of his boat in his hand, and C. L. Ross had his, and their boatmen all sprang the ash to its utmost, and after a race of three miles was over, with scarcely fifty yards separating them, Ross seized the ropes, sprang over on to the deck and without a word of explanation says: "Captain, have you got any red woolen shirts?" "Yes." "How many?" "A hundred dozen" "What will you take?" "One hundred per cent. on the New York cost." "It is done, and there is a hundred dollars to bind the bargain," and as the Captain said this the other one jumped on deck.

Gentlemen, there was not a red shirt in California. It was the most necessary article to the miner. He must have it if he had to pay a hundred dollars for it, and that was what Ross knew. Now the people of the outside world would look upon that purchase as hazardous or as exhibiting evidence of a mind that was deranged, but I tell you those men had a bottom to them—they had philosophy in them, and if you would see what things resulted in, I have only to appeal to my friends about me, and to remind them of what we have seen to day, and what we see every day. C. L. Ross cleared an enormous profit in his purchase of that cargo of those red shirts, and a few days after that, where Clay Street now reaches Montgomery, or a little below there, Mr. Gillespie entered upon the work of selling a cargo of tea that had just come in from China. There was none in the country, and dozens of men from up the country had come down to buy a portion of that tea. Gillespie stood up and offered ten chests with the privilege. One man bid and another man sitting away up on a box near the ceiling, just as Gillespie was going to say sold, he added a little to the bid, and then he added a little more, and by and by it was struck off to S. Brannan & Co. Said the auctioneer, "Mr. Brannan, how many will you take?" "The whole damned concern," says Brannan.

Things were pretty wild the first two or three years here. I wrote home somewhat extensively, and then I went home for a little while, and I talked very moderately with reference to what I knew about the country, and in the hall of the House of Representatives one Sunday night—and by the way it was ever opened for such services—I was lecturing, and I made a

statement that was entirely within the truth, and one of the ladies sitting there reached over to Miss Brocklebank and said, "What a lie." One of the Senators from here turned round, and with all the gravity of St. Paul said, "It is as true as the Gospel, every word of it."

Well, we have reached a point where we are most of us, getting to be somewhat advanced in years, and I have been contemplating the chances of my witnessing the reduplication of this silver wedding; I very seriously question it, but still I want to attend these anniversaries as long as I live, and I hope they will be continued. There were just 100 copies of this book printed and bound. It furnishes perhaps, more information in certain directions than anything else which has been published—it tells what our pioneers at least, would want to know. I don't know whether our other friends would want to know anything about it or not, but we have published these few pages with the hope that we might leave some facts when we go, upon which historians may write the truth with reference to the pioneers of California.

Gentlemen, I have been exceedingly happy to meet you to-day. This is one of the happy days of my life. I tell my family when I am going out in the evening, "except on the 28th of February you may expect me back at a good reasonable time, but on the 28th of February you must look for me when I come."

The Chairman—I will ask to read a toast, and will call for a response from our friend Mr. Wiggins.

"San Francisco, with 450 population in 1849, and 200,000 in 1874; the fastest city which Young America has produced."

Captain Wiggins—Gentlemen, I am placed in a somewhat anomalous position to-night in being called upon to respond to a toast that I had no idea or expectation would be assigned to me; but as an old Pioneer, I may say, with pride, that I am happy to meet the gentlemen that I have met upon this ship to-day. I occupy an anomalous position in this wise, that I am an old sailor turned soldier. Now, I pretend to be the Pioneer Steamship Captain, not of this coast perhaps; but I did have the honor to command the first American steamer that ever went around the Cape of Good Hope or Cape Horn. In the year 1845, R. B. Forbes, of Boston, a man who is eminent for his progressive ideas, built a little steam schooner in which the eminent engineer Ericson placed the machinery,

a double propeller. We expected and intended to make the quickest passage to China that ever was made, but unfortunately off the Cape of Good Hope we were attacked with storms, which made it impossible for us to go on, and we were obliged to put into the Isle of France in distress for repairs; and the consequence was that instead of making the quickest passage, probably we made the longest passage ever known; but we got to China safely. We were the first American steamer that ever appeared in Chinese waters. The captain of that vessel, I should have told you, went out as our chief officer—unfortunately he died in China, and I returned with her here. There are only two men in California to-day, so far as I know, that remember the old times of the old schooner, Bob Waterman and Edward Taylor, who was formerly cashier of the Pacific Mail Steamship Company. He was a clerk in the house of Russell & Co., in China, for whom I sailed for years. That was my first experience in the steamship business. I came out here to California in 1849, after my return trip going home from China to the East, and brought out here a load of down east lumber, the first load that ever came to the State of California; and shortly after my arrival I got acquainted with my friend Mr. Bromley, who has spoken to you before. He has told you about his experience in the business of hides and horns.

Now, gentlemen, if he had told you the truth, he would have told you that I furnished the capital for that expedition. [Laughter.] He withheld the truth. I did furnish the capital, and I expected the enterprise would be a success; but the difficulty was this, that both he and Bob Parker kept their own hides so full of horns, that the expedition resulted in a total failure.

Now, gentlemen, to leave jesting aside, (because these things will appear, and you can't help it,) when I passed around this bay to day, and went down from Rincon Point to Fort Point, I saw the old place upon which, when I came here—not a house was erected, but covered with tents in Happy Valley, and I remember that among those tents I have had many a bully time; but to see that built up with houses; to see the progress they have made to-day in California, I can hardly realize it. And when I heard the toast given to the Pacific Mail Steamship Company to-day, I looked back and remembered the old men—some of them I used to know in China years ago—Captain Wiggins, Captain Pearson, and Captain Whitney. Where are they gone? All gone.

Gentlemen, it gives me a saddened thought. I look at this

Captain to-day. I don't know him. He is a young man; but when I see him, I remember the old Captains of the Pacific Mail Steamship Company, who were old friends of mine; many of them I knew in early days. Robert Pearson was in Aspinwall's employ when I was a boy. He is dead and gone. Old Captain Watson, when I first new him, he came out to China in command of one of our finest clipper ships, the *Paul Jones*. He is dead, too. How many of them are gone, and a new generation springing up around us. How many of us will last twenty-five years longer, and see this old ship *California*, or her like, sail round this bay? Very few, I think. Gentlemen, I tell you it gives me feelings that I cannot express when I met to-day on the deck of this steamer men that I have not seen for twenty-five years—old General Pedro Carillo, whom I knew years and years ago, I never have seen him from that day to this, for I have been to sea until the last ten or twelve years; and many other gentlemen I have met here on the deck of this steamer, to-day, that I have not seen for twenty years; and it gives me pleasure to meet them. I know that they came here as representatives of the California Pioneers—men who have served to build up this country, to help it along. I hardly know what to say on an occasion of this kind. My heart is too full. But I do say this, that I am pleased to-day to have been in your company; to have met Dr. Stout, whom I used to know many, many years ago, when we used to play billiards together, and you always got beat. Another old representative here, Harry Livingston, I used to know him on the press, and he used to write diatribes about me years and years ago. And Dr. Cole, who, to-day, as of old, the policemen request to move on; and young Haraszthy here who was a boy when his old father was around. I knew him well, and I could go on that way for a week, you know, and express the kind feelings that I have for all that I see around me. I see the old gray-headed gentleman there. I never had the pleasure of knowing him; but many and many an old soldier I had known who had been through the war. I am representing here the National Guard of California—an old sailor turned soldier; but I expect those men who have fought for us, especially, as the gentleman said in the Mexican war, which gave us the country; if occasion should again recur, we would see them take their swords again, and show how fields are won. And, talking about soldiering, I remember poor old General Reilly, who was the first that took command under the military government. I remember the old General well.

Gentlemen, we have had a pleasant reunion. Let us hope

that at least, if Providence favor us, that in another quarter of a century, we may be able to join each other in another trip around the bay.

The Chairman—I will now offer but one or two more toasts. We have heard with extreme gratification the nautical experiences of our friend, and I wish to offer him one sentiment, "The Militia of the State of California; the most reluctant to leave their homes, the most willing to return to them, and always their most devoted defenders." I call for Colonel Wiggins.

Mr. Bromley—I rise to a question of privilege.

Mr. Wiggins—State your question of privilege.

Mr. Bromley—I wish to say something. Colonel Wiggins played that exceedingly fine. After making the statement reflecting upon the manner in which that enterprise was conducted, he went on then with a long, serious speech in order to make it appear that what he said was true. Now, Mr. President, I always have a peculiar regard for any gentleman's feelings, unless he treads on my corns. Now, I wish to state distinctly, that all this yarn about his being the first steamship man, and all that kind of thing, just don't amount to a row of pins. He was called upon unexpectedly, and he had n't the slightest idea what he was going to say, and consequently he is not responsible. I mean to say, that instead of being in a position to furnish capital for that enterprise, which he speaks so disrespectfully of, he was then acting as sailing master for a dredging machine in the bay.

Mr. Wiggins—In regard to the toast which you have just offered to the militia of the State of California, for which I have a high respect, there is another representative here besides myself. I call on a gentleman a Colonel on Major-General Cobb's staff—Dr. R. Beverly Cole.

Dr. Cole—Like the gentleman who last occupied your time, I am called unexpectedly, but being a medical man I ought to be prepared for any emergency. It is a well known fact that medical men, in their career as such, are liable to be called upon unexpectedly and ought always to be in readiness. I don't know that, in responding to the toast that has been offered, I would have been so ready if it had not been intimated in that toast that we are always ready to stay at home, or if

called out to return home. Now, whilst it has not been my good fortune, either upon the field—except it be the streets of San Francisco—or elsewhere, to appear in uniform to represent the State in any military or militia capacity, yet I hold myself in readiness—sworn in common with my fellow officers—to respond to any call that this State may make. I believe, sir, that the General under whom I am has had occasion once at least to respond to such a call. I believe that the militia of this State is as perfectly organized as is any similar organization in any State of the Union, and this I announce to you with a feeling of pride, for, as it has been stated, only twenty-five years since this was a wild country; there was no organization of society; those gentlemen who came here as true pioneers, represented as they are by the gentleman at my right (Capt. Wiggins). They left us this country in a chaotic condition in which we found it. It was our domain, our property, and they left us to protect it. The militia, then, of this State are expected to protect this country as it was handed down to us by those gentlemen, and I apprehend that there is no State in the Union in which there is a more perfect organization of the militia than is there in the State of California. [Applause.] I state this with a feeling of pride; I am glad to have an opportunity of doing so in the absence of my General. I am, however, upon the staff, not in the capacity of executive officer, except in my peculiar rôle of bleeding and purging. If you are not perfectly satisfied with my efficiency in the rôle assigned me, I am ready at all times to respond to your call, and to any of you gentlemen assembled here I will guarantee to you to administer my bolus, *secundem artem*, to your entire satisfaction; and if I should fail I have a most infallible aid at my right, who is Dr. Breeze, and who I believe is capable of creating breeze enough, whenever it may be necessary for him to do so.

The Chairman—I would like to respond to my colleague, Dr. Cole—recognizing his great ability—and I do not question in the least but that as a military man, or as a surgeon, he has a capacity which would be equally destructive on both sides. [Laughter.]

Capt. Kortz—In regard to what Capt. Wiggins has said in regard to Whiting, and Pearson, and Watson, I have only to say that I have learned from those men what I know at present in regard to steamships. I have studied their voyages between here and Panama, and the different places they have

been running, north and south—San Diego, Oregon, Coos Bay, and all those places—and the former experience of those men has enabled me to take charge of the *California* to-day, and without their aid and experience I could not have been able to fill the place to which I have been so lately promoted. I appreciate all you say in regard to those old commanders, Watkins, Pearson, Whiting, Blethen, Merry and Waterman. I have been in connection with all those men in business concerns. Capt. Waterman I regard as one of the most efficient men, if not the most efficient man, on this coast in regard to a ship. He can go on board a steamship and pick you out every timber, every knee, and everything you can imagine about a ship, and tell you what its condition is by merely using that old bowie knife of his that he carries, and wherever that knife goes he is sure to find something. When you take Robert A. Waterman from the hurricane deck down to the kelson of a ship he will tell you in twenty-five minutes what she is worth, what she is fit for, what cargo she ought to carry, and how many square feet of timber there is in her; and I am proud to say that San Francisco has a man at the head of her Hull Inspectors whose equal can not be found. The Insurance Companies of San Francisco, to-day, in respect to the rating of marine risks, are conducted better than those even in New York, Boston and Philadelphia, and I do not except England itself. The issuing of our certificates to different officers—engineers, officers and captains—is not conducted in the way it is done in England, or New York; but at the same time, when Waterman and Bemis examine a man for a certificate, they examine him for all that he is worth, and I am proud to say that the officers of the merchant marine of the United States to-day are men you can rely upon. As for myself, I have been running in Webb's line for two years and in the Company's line for eight years, as second and third officer. I am sorry to say that there has been trouble in organizing the Australian Steamship Company; that Webb did not succeed in getting the subsidy for the line between here and New Zealand. I am sorry that it is in the hands of an English Company now, and I am sorry to say, from present appearances, there is not much probability of its getting into the hands of an American Company. The English have got a foothold and they are bound to keep it.

Captain Wiggins—I give a volunteer toast to Ulysses S. Grant, President of the United States, and to that toast I would call on the Hon. Giles H. Gray to respond.

Mr. Gray said—Ulysses S. Grant is our honored President, and Chief Executive, twice the nations choice, for the highest honors which a Republic can confer by the right of suffrage. Once our nation's general to aid in bringing the ship of State through the angry storm of secession, and now the representative of the political sentiment which has controlled our country's affairs while its present prosperity has been culminating.

Our national prosperity has been great, but the State of California has prospered more, and to-day we have paused to examine the balance sheet, and estimate our profits; and the gentlemen present are best able to realize the success of venture of our Pioneers of 1849.

This day is a day of Jubilee. It is the 25th anniversary of the arrival of this vessel in this harbor. On the 28th day of February, 1849, this steamship *California*, the first of the line of mail steamers destined to sail upon the Pacific Coast, arrived at the town of Yerba Buena, now San Francisco.

Then the population of this place scarcely exceeded two thousand persons, then the shipping consisted of about two hundred square rigged vessels lying at anchor, deserted by seamen gone to the mines. In that year the exports consisted of gold alone, and did not exceed five millions, now in gold and agricultural products, after twenty-five years, the exports have increased fourteen times, and is now nearly sixty-nine millions dollars. Then at the close of the first year the assessable property of the State did not exceed seven and one-half millions, now it has increased to nearly five hundred and twenty-seven millions.

Then the nation could collect no customs revenue at this port, now it has for the past fiscal year collected over eight millions, and is the third port in the United States, in importance to the Treasury.

Then you found a country whose fertile hills and plains were traveled only by narrow trails, and upon horseback. You have aided to build wharves, streets, wagon roads, and railroads. The months' journey of that day is now reduced to an excursion of a few hours. The farmer who then could only send his grain to market in the hoof, can now at less expense deliver it in San Francisco in sacks.

The product of land two hundred miles away can now be delivered at tide water, cheaper than when you came here the man living five miles away could have accomplished the same result. From where we now sit steam communication radiates

in every direction to make distant farms accessible, and to gather to the market the riches of the State.

The journey of six long weeks by which you came here can now be performed in almost an equal number of days—by railroad, of which we now have nearly 1,200 miles in length.

All this has been done in a few years and none are oppressed, all are free.

In all this you have each contributed your full share of effort. For this you love the State you have aided to build up, and in which you have your homes. And to-day we join hands in the work, to again go forth for future progress.

But I am told there is a cloud in our horizon, that a storm is threatened ; it has not come yet. By the way of Woodland we learn that a denizen thereof, has found the seeds of disease in our railroads, and he alone has the remedy in "*Freeman's Bill to Regulate Freights and Fares.*" Even the Governor is convinced, as well as a few local newspapers. They would have us believe that we are sleeping over a powder mine, ready to consume us without warning.

It matters not to them that our railroads are built over a sparsely settled country, and over high grades, and through a snow belt, and are hardly completed yet. The insane desire to "regulate" seems to have blinded these people to all other considerations, and in view of our past prosperity, their triumph when it shall occur, ought to be expressed in conspicuous head lines, as follows :

Good news ! Reform triumphant ! Old administration overthrown ! The new party in the ascendant ! No more hard times ! No more bad debts ! No more railroad monopolies ! Freeman's bill to regulate railroads has become a law ! Railroads to be run on our terms ! Short railroads possibly extinguished ! California cattle monopolists jubilant ! Coal market relieved of the depressing influence of arrivals by rail from the Rocky Mountains ! Ice to be five cents per pound ! and Woodland is revenged !

Hens to lay two eggs a day, and plow horses to trot in 2:40 !

Verily, Dolly Varden is happy.

The Chairman—I will invite Mr. Williams to respond to the toast of one of the great men whose name has not yet been brought fairly before you, though his picture has been before you to-day. He is the man who built the ship that we now have taken possession of, and on which we have had our pleasant excursion to-day. He is the man who built the *Dandenberg;* and had the Franco-German war been fought on the

ocean, the result of it might have been different. It is he who opened the Australian trade, and it is of William H. Webb, gentlemen, that I invite Mr. Williams to speak.

Mr. Williams—Mr. President, I am very sorry that there is not some one here to respond to that toast who can do so more ably than myself; but, as you have seen fit to call upon me, I will take great pleasure in saying a few words relative to that great man. We all have our peculiar ideas of great men. We have great statesmen, great generals, and great mechanics. I, as mechanic, have great partiality for mechanics, and that William H. Webb, whose likeness you see there, still in the prime of life, is, to-day, the first mechanic of America, is something that is not disputed anywhere. The career of that man stamps him as one of the greatest men in America. Great military chieftains and great statesmen each have their spheres, and popular applause will frequently assign them a position higher than that of the great mechanic, but to my mind, there is not in our country a greater man to day than William H. Webb. He was but little over twenty-one years of age when he designed and built this ship. He had just taken charge of a large establishment owned by his father, in company with some one else. His father had just died, leaving the establishment much embarrassed. His father was a great mechanic, but not a financier; but this gentleman is a financier, the equal of any in America, which is equivalent to saying, there is none better in the world. He understands the details of the business, and he can carry on an establishment where a dozen large ships may be built at the same time, and he will supervise the general designs and detail of every ship. He is a wonderful man, and I don't think that our country, in its legislative capacity, has ever committed a greater blunder than when they refused to give the aid he asked for this Australian line. [Applause.] He came out to this coast after he had virtually retired from business, having started, as I told you, a boy without a dollar, and with a debt perhaps of fifty or sixty thousand dollars, as I have been informed, left him as his only legacy by his father. He at once took hold of that establishment, and in a few months he inspired the merchants of New York that he was a superior man to any other who had ever occupied such a position, and before he was twenty-two years of age, he found himself in charge of this shipyard in New York; he had paid off that debt, and since that time has amassed a fortune of somewhere from ten to twenty millions of dollars, not by speculation, not by stock operation, but by

legitimate business—by building such ships as this, and winding up with the great *Dunderberg*—the wonder of the man.

He was out here a few years since, and the Mechanics' Institute of this city had the pleasure of inviting him to their hall, where they held a public meeting, presided over by our Mayor. It was a perfect ovation to a man of genius—to a man whom they recognized as the first in his profession. Though a mechanic, bred to the trade of a ship-carpenter, he is a scholar and a polished gentleman, and possessing all the qualities of a great man, and I wish I had the ability to express better than I do my appreciation of him. When we look at his career, as I have just said, starting without a dollar, and with a large debt on his shoulders, to earn, at fifty years of age, a fortune of from ten to twenty millions of dollars, the legitimate product of his industry, is, to my mind, a proof of his greatness, and, for my part, I feel proud to-night at being able to say what I have said in reference to the builder of this pioneer ship that brought us to this shore.

And that brings me down to the present moment, and while I will not detain you by any lengthy remarks upon the many changes we have seen, because, if I were to undertake it, it would occupy more time than would be prudent or necessary, but I will wind up with a brief quotation from one who is conceded so be the greatest statesman of America, and the equal of any in the world—the great Webster—who, on an occasion somewhat like this, half a century ago, said, "I thank my God that my portion of existence was meted out to me when and where it was." That was half a century ago, up among the hills of New England, and I have thought to-night that if he had occasion, a half a century ago, before steam was generally introduced, before any one conceived of such a ship as this; before any one dreamed of the telegraph, and of the wonderful changes which we have seen ourselves—if he had cause to thank his Creator that his portion of existence was meted out to him then, how much more cause have we to-day to feel grateful to the Governor of all things, that we should have our portion of existence at this particular time. [Applause.] If he had cause to thank his God that his existence had been meted out to him among the barren hills of New England, where the chilling winds of winter blow for almost three-quarters of the year, how much more should we, under the genial sky of California, with everything that heart could wish, be thankful that we have been permitted, those of us particularly who are pioneers, that we have been enabled to live here for a quarter of a century, and see the changes that

we have seen from earliest times until to-day, and I say it fills the measure of my overflowing heart, and I have not words to express my feelings.

The Chairman—I would ask your indulgence by proposing that the Secretary of the First Steamship Pioneers be requested, by the vote of this Company now assembled, to write a letter to William H. Webb, recounting to him the circumstances of to-day's ceremony, and announcing to him the remarks that were made in his honor. If some gentleman present will take the initiative and will move that it be passed, that our Secretary be authorized under a vote of this Association now present to thus announce the result of the evening's remarks to Mr. William H. Webb, I think it will be agreeable to you and to him.

Mr. Livingstone—I will with pleasure make that motion, sir.

Dr. Cole—Allow me to say, that it would not look as it should appear to Mr. Webb, to have the remarks of Mr. Williams reported to him in Mr. Williams' own handwriting. I therefore would move, sir, that a committee of this assemblage, consisting of yourself, sir, of Captain Whittell, and Mr. Livingstone, if you please, be appointed for the purposes which have been stated in your remarks. The object is to release Mr. Williams from a duty which might appear to be indelicate, in transmitting in his own handwriting to Mr. Webb the remarks which he himself has made.

The Chairman—I insist most respectfully that my place on the proposed committee be occupied by Henry S. Williams. It is to him that the honor should belong. He should be the Chairman of that Committee. He, like Mr. Webb, commenced, as a young mechanic, he desired to come to California and was dissuaded, but with a determination that but few men have shown, he came to California and inaugurated some of the first institutions of San Francisco, and therefore, sir, if you will have the kindness to change your motion, I will consider it not only agreeable, but important, that Mr. Williams should be Chairman of that Committee.

Dr. Cole—I apprehend that I have not been understood by you. My aim has not been to detract from the position Mr. Williams occupies; on the contrary, I would have it appear

[illegible] I think it would be better if we had a Committee of the House to deal with this matter, and I would suggest that the Committee should consist of the Chairman, Mr. Wilson, Mr. Wood, Mr. Hall, Mr. Lewis, Mr. Cowan, Mr. Ross, Mr. Bell, Mr. Lemieux, Mr. Bennett, Mr. Sutherland, Mr. Bureau, Mr. Bourassa, Mr. Bourassa, Mr. Bourassa

have only increased their speed about twelve hours. The Collins Line in 1852 made a voyage across from New York to Liverpool in nine days and sixteen hours, and the shortest time to-day is only nine days and twelve hours, so that proves that with all our improvements we have not accomplished very much in the way of steam, and my judgment is, that the old way of using steam is the best, and the old flue-boilers are to-day the best and the safest. I have crossed the ocean many and many a time, and in the last ten years, since 1864, I have had but one month of recreation, and that ten years of observation justifies me in saying that with all the new improvements, I would rather trust my life and those of my passengers on board this ship to-day, in a side-wheel steamship in preference to a propeller, and I say again, that to-day the *California* is the most economical ship that runs out of the port of San Francisco.

Mr. Chairman—I shall ask you to stop for but one more regular toast. It is, "The Press: when pure, a Fresnal light-house to guide into deep water the ship of State; when venal, a jack-o'-lantern to strand her in the mire." Mr. Livingston is the representative of the pure press, and I call on him for a response.

Mr. Livingston—To the pure all things are pure, whether so or not. This is certainly an unexpected pleasure, that I am called upon to address you in response to this toast. Relative to the press, I do claim to be one of its earliest and one of its honest founders on this coast. Its progress I have marked from its incipiency to the present; and although we have fallen, in latter days, upon a venal press, I can assure you that in the days of 1849 there was no such thing known as a venal press. Perhaps one reason was that there was but one press here, and that represented the Mormon faith. The Mormons are true to their faith generally. They have always been true. The founder of the first press in the State was Samuel Brannan, in Monterey. There was another little paper established in San Francisco. The two papers, known as the *California Star* and the *Californian*, were merged into the *Alta California* on the 1st day of January, 1849, when the *Alta California* was established as a daily press. From that time to this there have been established, and lived and died, over a thousand newspapers in this State. And I don't believe that to-day there are over five or ten newspapers which were established prior to the year 1852. I had the honor of being connected with one in Sacramento as early as 1851; but it died with

the cholera, as everything else in that town did during that melancholy year. Among the earlier pioneer journalists was one whose name will always be revered by political foes as well as by political friends. I refer to Edward Gilbert, who now sleeps with his fathers, and who was buried here in Yerba Buena cemetery; and his grave may be observed to-day from the corner-stone of the City Hall. When we carried his remains to their final resting place we were some two or three hours getting to the spot. It was an exceedingly hot day; the sand was knee deep all the way out there; and I thought from the distance that we were going to San Jose. At this time, of course, all the bodies have been removed, and along with that of Gilbert. But I am sorry to say that the press of this city have been derelict in not having erected a monument to his memory, such a monument as should stand above the grave of our pioneer journalist.

To turn from the serious to the ludicrous, we have experienced a good many felicities and pleasures in the early days of the press. The editors never, from the beginning of the world possessed much coin. I remember at Sutter's Fort in 1849, Mr. Lawrence edited a paper called the *Placer Times*, about ten inches by six in dimensions. On the Fourth of July, 1849, we had a ball at that fort. There were three ladies there, and about 200 gentlemen, and in the after part of the day Sam Brannan carried out a basket of champagne, and the bottles were set up and fired at as a target; and in the evening we had a grand ball. One of those ladies came from the county in Missouri called Pike; and she had never seen champagne before. One of the gentlemen brought her a glass. She took a sip, handed it back to the gentleman, and he took a sip. Then she sipped—then he sipped, until they exhausted the glass between them. The gentleman said to her, influenced probably by what he had been drinking during the day:

> "Drink to me only with thine eyes,
> And I'll not ask for wine.
> Leave but the kiss within the cup,"—etc.

The lady thought he meant to insult her, and she exclaimed, "I shan't do it, sir." Those were great old days. In Klamath county we had a paper in 1856. I was District-Attorney there. I was called upon to marry a couple. I supposed that I had the right to do it as they did in New York. But I found out since that was not the case. There was a fellow from Sawyer's Bar brought a caparisoned mule down to my

claim, where I was at work, for I kept store, practiced law and dug gold, in those days, all three. He says, "I want you to go up to Sawyer's Bar and marry a couple, and this mule shall be yours if you marry them well." It was a rough road to Sawyer's Bar, and when you got there it was the roughest camp in the State. We found them all drinking the health of the happy couple in raw rum. Says I, "Where is the couple?" And they pointed out to me, on a little cot mattress, where the two were seated. I told him to stand up. The man had on a red shirt, and the woman a calico dress with yellow leaves set all around the bottom for ornament. I had been reared as an Episcopalian, but I had forgotten in regard to the form of marriage; and I paused for a moment, and finally concluded that I would administer the oath as I did to witnesses. So they held up their right hands, and, looking as soberly as I could upon them, I said, "You do solemnly swear, in the presence of Almighty God and the surrounding witnesses, that you will perform the duties of the marital relation to the best of your knowledge and belief, so help you, God." The assembled company gave three cheers. I took my drink with them in the health of the bride, and rode back home on my fee; and I didn't learn until six months afterwards, when I went down to Sacramento, that the statutes of the State did not allow a District-Attorney to perform the marriage ceremony. But that couple is living there now and have raised a family under the written credentials which I gave them. [Laughter and applause.]

Captain Whittell was called upon for a speech and said—I cannot tell you any long stories. When I came to California I said, "This is the place I will live in—I will live and die here;" and I think I may have that opinion still. I regard this anniversary as one of the great events of the country. Here are the founders of one of the greatest cities of the world, meeting to celebrate the Twenty-fifth Anniversary of their arrival here, and I congratulate you upon the fact that so many of you have been preserved to see this day.

Captain Wiggins—We have forgotten to drink the health of those who tend us when we are sick, and I will call upon Dr. Breeze. "The Ladies," God bless them.

Dr. Breeze declining to respond, Captain Wiggins said—A lady came out a short time ago, and made an expression derogatory to the pioneer ladies of San Francisco. She knew not

what she was talking about. The few ladies of the olden time have done more to direct society, to establish and influence for good, than we can well appreciate at the present time. How many of us can look back to the ladies of that time and say with the poet:

> "Ah woman! in our hours of ease,
> Uncertain, coy, and hard to please;
> When pain and anguish wring the brow,
> A ministering angel thou."

How many of us can say that; and when I look back to the ladies of that day, and remember the few pioneer ladies of San Francisco here in the early days of 1848-49 (and we all know how few they were), yet their influence was always given for good. And the lady who made an aspersion upon the character of the pioneer ladies here, knew not what she was talking about, when she made that aspersion. I can remember away back in the early days several of the pioneer ladies. We all know what we were here then. We went around with red shirts and pistols in our pockets; and it was by the influence of the ladies here that we were brought back to civilization, and to a remembrance of our old homes and our associations. All honor to the Pioneer ladies of San Francisco! All honor to them for what they have done; and the few that remain of them to-day let us greet them with all the honors we can give them: Pioneer Ladies of San Francisco.

Captain Whittell proposed the toast, "Dr. A. B. Stout."

The Doctor—I cannot decline, although the hour is late. Thank you for the compliment now paid to me. I acknowledge it sincerely, but I will not spend the time that you allot me in descanting either upon myself or my profession; but, with your permission, after all that has transpired to-day, I will ask you to dwell one moment upon what, in view of the occasion and in regard to our future progress, ought to invite the attention of men. Gentlemen, saying that, and having before me the representatives of the highest departments of the military and scholastic professions—representatives of the men who built and commanded the ships that have brought us here—who have assisted in bringing up the shipping interest of the United States of America from what it appeared to those who have told us how the country appeared in 1849, when the first three steamers, the *California*, the *Panama*, and the *Oregon* sailed from New York under the auspices of the government,

up to the present time when the fleet of the Pacific Mail Steamship Company numbers in ships and tonnage an amount which I am not able to lay before you; but, gentlemen, you are the representatives of the great commercial ideas, and you, with your interest, with your correspondence with the Congress of the United States, your interest with the Legislature of our State, and your correspondence with members of Congress from the interior of our country, can exercise an influence which may cause it to take an impulse from this moment. We have another influence besides, and that is woman's influence, and her still, small voice is very potential even in the highest offices of the government of our country. I would venture to say, that if you are now called upon to exercise an influence upon the Pacific coast, call upon Congress to take those steps which may enable our shipping interest to arise from its depression, and compete with the foreign shipping interest which destroys our commerce. And if the interior of our country, which now occupies the almost exclusive attention of the government; if it could be made to feel, that while the interior is the heart of the country, yet that heart is maintained by the external organs, and that the marine of the United States are the locomotives of the forces which supply that heart with its nourishment and support, by carrying its imports and its exports.

Let the Legislatures of the interior but learn that the expenditures and demands upon the Treasury of our country for internal improvements, take but a second place to the perfecting of our exterior commerce upon the ocean. I think you will agree with me in considering that it is the ocean that is the great field—the open ground of all nations. And when battles are fought, whether in the rivalry of peace or in the hostile action of war, it is a ground upon which our country must meet its foes and meet its friends. That great water which protects our frontier, demands more care from the country than the interior, and in cultivating it our national government, by their subsidies, are aiding American merchants to build ships in competition with the architects of the Clyde, and that we should find some system by which we can compete with them. I meant to give you my ideas, not as a physician, but the borrowed thoughts of a statesman, when I tell you, gentlemen, that the pressure of the country must come upon the central government to provide means by which the forty per cent. can be rebated to American shipbuilders in order to obtain a standpoint upon the ocean with European powers. Permit me, and I will illustrate that idea in brief:

When the builders of the Delaware proposed to build for the Pacific Mail Steamship Company their last iron vessels, it was found, by the investigation of an architect from the Clyde, who examined into all the details, that those vessels, which were contracted for on the Delaware, could be furnished from the Clyde at forty per cent. less. And that one of the principal reasons of it was in the cost of labor; that the requirements of the mechanic and the laborer of America, in consequence of the payment of taxes, and in consequence of the cost of the necessaries of his living, were such that his living was more costly than that of the English artizan or workman, and that the difference of forty per cent. was what drove our American architecture off the ocean. In consequence of that it is plain that Congress should allow American merchants to buy cheaper ships the same as in the German and French empires. If bought from the Clyde those ships could bring into the country an amount of wealth far greater than the difference of the forty per cent., and if our government would only do as the English government—grant subsidies to steamship lines—and permit our merchants to buy ships from the Clyde at forty per cent. less than we can afford to build them at, we would have a fleet that would be sufficient to carry our grain and other exports; our ships would then occupy a place on the ocean that they are entitled to; our lumber and our iron could be brought into the market, for we have iron, and all the materials in California; we have iron without measure, and we have the finest lumber in the world, and yet our government will not, from the influence of the interior statesmen, give to the commercial marine that support which it deserves. I have extended my remarks longer than I should, but I could not refrain from saying what I have, in the hope that the initiative will be taken by gentlemen capable of exercising an influence with the country, and that measures may be taken by which the shipping interest of the United States may be brought up to the standard of the shipping interests of other nations. [Applause.]

Captain Kortz—Mr. Page will speak on that subject.

Mr. Page—Allow me to say that I am not the sailor or the son of a sailor, and this is about as much of the sea as I care about seeing. I am a landsman and a business man, but I think I am justified in saying that the Pacific Mail Steamship Company have made a very happy selection in their new agent. I believe so from what I can learn. I do not know the gen-

tleman personally, at all, and do not know that I have ever seen him, but I have heard a great many business men speak of him. I have heard him discussed in business circles, and I am told he is an energetic, clear-headed, far-seeing man. He has reduced the expenses of this Company perhaps to a saving of a million dollars a year. Business men in discussion have said that he has a familiarity with this business, an enterprise and intelligence which will lead this Company to great prosperity on this coast, and in the business transactions with merchants here and the Company he has given much satisfaction. I have heard so much said, complimentary to his management of the line, that Californians, and especially San Franciscans can congratulate themselves upon the happy selection of Captain Higgins as the Agent of the Company here on this Coast. Now, I say this, not knowing the gentleman at all, but entirely from hearing him discussed in business circles. I am certain that no happier selection could be made for that position, and I propose for a volunteer toast the health of Captain Higgins, the new Agent of the Company. [Applause.]

The Chairman—No more appropriate toast could be made, for it is to Captain Higgins and Captain Kortz that we are indebted for the admirable arrangement of the steamer for the festivities we have enjoyed to-day.

Captain Whittell—We have been drinking Mr. Haraszthy's wine all day. I propose the health of Mr. Haraszthy. [Applause.]

Mr. Haraszthy—I feel very much flattered at your call, but I do not think that I can do justice to the subject. I would rather that somebody else would answer. I have only a few words to say to congratulate the Pioneers upon the noble determination and courage they have shown through life, producing as it has an empire from the wilderness. [Applause.] And they have likewise done a creditable thing in continuing the line of policy which had already been adopted by the Pioneers of Sacramento, and since by the Pioneers of San Francisco, that is, of having upon all of their public festivities, wines solely made in California. I think that the courage they show in adopting this rule was fully equal to that which induced them to risk their lives and fortunes in their first coming to California. The wines of California have everything against them so far as prejudice goes. They are cheap, they

are new, they have no reputation, though they are fast acquiring one, and the labor which makes them has been up to this moment unskilled. Years ago, when the Americans took possession of California there was about one million of vines. At this time there are from thirty to thirty-five million, representing a capacity of producing fifteen to seventeen million gallons of wine annually, and representing a net revenue to the producer of three to four millions of dollars. We cannot drink the whole of this wine in this State even if we had three times our present population, therefore, all this revenue will be poured in from other sources. That is what the wine interest is at the present time: but we must look further than that. Strangers will come here from the east, they will notice our barren hillsides covered with chapparel, where not even a sheep can live, and a goat can hardly exist, they won't produce anything. Our rich valleys we need for grain. As our population increases the shipping interest increases so that our grain can be taken away cheaper, and we will need all our rich valleys; what then shall we do with the barren hills? Plant vines upon them.

France derives a revenue annually of about four hundred to five hundred million dollars for wine she exports, and she only exports less than one-third of her own productions. If you throw into the balance what she consumes at home, the sum would be immense, hardly believable. The natives of France, Germany, Greece and Italy are known to be the most temperate people in the world, and California has the beautiful future before her of making a temperate people of the whole United States. Our capacity is more than double that of France. We have done very little, although we think we have done a great deal. Last year we have shipped from this city and State over a million and a half gallons of wine and brandy, representing some $700,000. Possibly in 1854–5 and 6, we may have imported a couple of million dollars of goods from France and Germany in that line.

I only answer this toast because I am called upon to do it, and I do not feel that I can do it justice, especially at this late hour. All I have to say is, that by increasing wine when our gold and silver mines are decreased, as they have decreased, and as the grain product of the State decreases, the time will come that the revenue derived from wine will be double the amount of the revenue derived from our precious metals and grain together, and in handling that crop we will need not one, but hundreds and thousands of ships. In Bordeaux there are 30 ships loading every day, and mostly with wine.

Their silks and other products do not need the tonnage that wine does, and little France, which is as large only as California and a couple of counties in Oregon, supports forty millions of people, and lays tribute upon the whole world to support them, and what from? The greatest part of the revenue is from their wines.

Mr. President, I don't care about claiming all the credit for the development of the wine interest, because it has not yet been born. One thing has struck me as almost an imperative necessity, that the adventurous spirits who came here across the Isthmus or around the Cape, who sought work in San Francisco and found it not, who ascended the Sacramento, tried their fortunes in mines, and failing in that settled down to steady pursuits. It was they who proved the fallacy of the statement of the Hon. John B. Weller, that he "would not give seventy-five cents for all the agricultural land in California." They found that wheat, barley, oats, rye, potatoes and other agricultural products would grow in California without irrigation, and the hardy, sturdy, honest pioneers went to work, threw cattle-raising aside, and went to till the soil. The present prosperity of California is due to those men, the farmers, the agriculturists of California. It is they who have really built our beautiful ships; it is they who load these ships with precious cargoes, and which we want to be American ships, but which I am sorry to say are mostly English, German and French ships. It is they who sustain the ships, who sustain those who handle them; and if you will back the farmers you will have all the ships you desire. Without products you could not have your ships; with products your ships will come, whether they be yours or those of other countries. No other people have made California homes, and it is to them that I propose a toast, to the memory of those that are living, the "Farmers of California!" and I would desire to call on one man here who has spoken already, but he has done as much, if not more than any other man, to forward the interests and to represent the views of that class of men—Mr. Wheeler.

Mr. Wheeler—Some sixteen years since I called at the rendezvous of Mr. Haraszthy, at Sonoma. I was then Secretary of the State Agricultural Society. They had several times elected me, and I had refused to serve unless they would do something whereby my labors should result in something permanent, that is, do something more than simply to hold a fair here and there, and pull up stakes every year; they finally

agreed they would locate an office and permit me to work, and I agreed to serve them. I called at Mr. Haraszthy, and after a little conversation he said to me, "I have a boy over in Paris in school—the Polytechnic School—and I am going to bring him in the highest class of agriculturists, and I am going to make a wine man of him." After a little time he told me his boy had got through with the school, in the ordinary sense of the term, and had gone out in a champagne neighborhood, and "although," he said, "I do not drink champagne myself, I know the California people do, and want it, and I want they should have the best article, and I have set my boy to learn how to make champagne as it should be made," and he requested me to write to the boy, and in correspondence which has been a very voluminous one for twenty-five years, I have seldom had a correspondent that I so much prized—never one of his age that I so much prized—as I do the gentleman who has just addressed us. While he was engaged in his education, learning not how to make wine and brandy, but learning how to make champagne, the Colonel said, "I am determined, if my boy lives, that we shall have one educated man in that one particular." All his letters were furnished to me, all the steps he was taking and all the developments pertaining to the wine interest in France, and it has been a very singular thing, that after a long correspondence, which was always full of interest, very deep interest on my part, and though I had known him well, I never met him till to-day. Now, sir, he has seen fit to remark with reference to myself about the agricultural interests. For seven years I labored as a sole occupation in that one thing, for the agricultural interests of California. I travelled officially over 30,000 miles in the State of California. When I resigned my position in 1863, to take service as Chief Clerk in the Legislature, there was not a prominent farm in California that I had not personally gone all over and taken the minutes of, very fully; and the most of those minutes I had published. There was not a prominent mine west of the summit of the Sierras that I had not gone to the bottom of and taken notes of. I have followed with the deepest interest from that time to this, the agricultural interest of the country. While I was engaged surveying the great Mariposa mine, and while I was going down in the Amador mine and examining them: and while I was up in Plumas county in the gravel diggings, where right in the breast, I took out one single handful with my own hand, that had over $90 of pure gold in it, besides the sand. And, as Mr. Hayward told me at the Amador mine, "I am

now, in less than two years from the time when I could not get trusted for half a sack of flour, I am now depositing $20,000 a month above all my expenses." Yet all these mining interests looked to me like simply the stepping stones to the temple, sir. They were simply paving the way for the immense agricultural interest of the State, and laying a foundation for a more permanent footing. Now, sir, if any one of you see fit to read this little document I have referred to, you will find that we have had for sale, during the last year, some 26,000,000 of bushels of wheat. You will find that we have made some four million of gallons of wine; that this great wine interest that we have just been telling about is not merely in the ordinary sense "making California progress," but it is absolutely going forward with a gigantic rush. A few years ago, when we were told that a million of vines or two were being planted, some stood aghast, and wondered what would be done with all the wine. Now, when we, after some twenty millions of vines have been planted, and forty millions of vines in the ground to-day, rooting for next year's planting; and when we are developing our resources at that rate, we certainly have occasion to believe the statement just made to us by Mr. Haraszthy, that the great interest of our land is the agricultural interest. As you have stated, sir, it is our great interest; and I must say that I was exceedingly interested in those remarks. In relation to our commercial interests, our shipping interests, upon the seas, I had wondered that it had not been dwelt upon before; and then I wondered that you had dwelt upon it, as you did, from your profession; but, sir, I was exceedingly interested in those remarks. They are fundamental. We are a producing people, and we have but a few people to support, and we must have a multitude of ships to carry away our products. He has told us, and he tells us the literal truth, in a comparative sense, that our wines have a very small reputation. And yet I would like to have you go to the house of Landesberger & Co., that he represents, or the house of Kohler Frohling, or other houses who deal in those wines, and just look over the catalogue of agencies, and you will find that there is scarcely a town in the civilized world to which they are not sending their wines to-day, sir. Then I would like to have you look at the shipping list, and learn that scarcely a vessel leaves this port, or a train of cars leaves our depot, that does not take our wines to foreign markets; and every gallon of wine that is shipped will make a market for ten gallons more. [Applause.] I have, of course, better sense than to occupy your time longer. I am greatly obliged for the

compliment of being called upon. I did not expect to say a word to-night; but I do assure you, that those two great interests—the agricultural interest that produces, and the shipping interest that carries that produce to market—are the two interests which will constitute the foundation of our California prosperity in all time to come. [Applause.]

Mr. Williams—You, sir, and those of our pioneers, well remember General Adair, who, with his wife and children, came up with us on this ship twenty-five years ago. I am pleased to state that I have learned to-day from one of the family, who is with us this evening, that all are still living. The general and his wife are in Astoria, where they have lived twenty-five years, and their children, with one exception, are all in San Francisco to-day. We have two of them with us this evening. I propose the health of the Adair family.

Mr. Adair said in response to the toast: I, as a young member of the family, and one of the six children my father brought to this coast, on this vessel, have only to thank you for your kind remembrance of him, to-night, as he is not present in person, though he is with you in spirit. He is, in every sense of the word, a pioneer. He came to this coast twenty-five years ago with his six children. Since that time he has resided in Oregon, where he was Collector of Customs at Astoria for twelve years. Since that time he has not taken part in public affairs at home: but he has never failed to remember the anniversary of the day he arrived in California, and never fails to call in mind to us children, when at home, his pleasant recollection of those who were with him on the voyage. With these few words I thank you for your remembrance of him. I did not expect that his name would be mentioned, and, therefore I feel deeply gratified to think that some gentleman has been kind enough to call his memory to mind.

Mr. Williams—We never failed to call his name on every anniversary.

I will propose now the health of the oldest member of our association present—Mr. Davis. It is to Mr. Davis that is due our having this celebration to-day on this old steamer. At our meeting, last year, we had a very pleasant reunion indeed, and in the course of a few remarks, which were very appropriate, he suggested that a committee be appointed to try, if possible,

to obtain this old steamer for the twenty-fifth anniversary celebration of our arrival. As he is the gentleman who suggested it, I desire those present to know that fact, and I propose his health.

Mr. Davis—I am very thankful to you and the other gentlemen who have been so kind as to name me in such a favorable manner. I am truly happy to think that we have been so successful in getting the steamer, and at the same time I must say that the representatives of the Company, Mr. Higgins and the other officers have acted in such a generous manner towards us, that it was far more than we could possibly have expected at the time. As one of the old pioneers who came on her, I wish to return to them our sincere thanks for the gentlemanly manner in which they have treated us; and, not being accustomed to speaking, you will excuse me from any further remarks.

Mr. Williams—We have two of our fellow passengers present this evening who never have met with us before. We had, in our ignorance, recorded them as dead. There were three brothers who came with us. One died. That news reached us; and, each year as the roll was called, some one would arise and say, he was dead; and before we got through with our record, we had them marked all dead. But I am pleased to know that two of them survive, and are with us this evening. When the announcement was made that we were to celebrate the twenty-fifth anniversary on this old steamer, although they lived away up in the south of the State, and at such a distance that it took them five days' time to reach here. They started, and are with us this evening. The two brothers Mack. I propose their health.

Mr. Mack said: I am obliged to you, gentlemen, for this compliment. We are the two brothers you refer to. I am sorry to say that the third one could not celebrate this day with us. I tell you I would not take all that I have in California for the pleasure that I have felt in meeting with you on this anniversary.

Mr. Wheeler—I wish to make this a little more clear. These gentlemen live a hundred miles south of Carson City, near the border line between California and Nevada; and they rode a hundred miles in the stage to reach Carson City, and

then rode two hundred and eighty-six miles on the railroad to get here to attend this celebration.

Mr. Wiggins—Let us not forget one thing, that is, to thank that Power which has carried us safely through so many years up to this time. Let us remember that before we part, and let us ask Brother Wheeler to give us a blessing.

After a benediction from Mr. Wheeler the meeting adjourned.

Spring Valley Water Company

REPORTS

OF THE

PRESIDENT,

CHIEF ENGINEER,

AND

SECRETARY

OF THE

Spring Valley Water Works.

RESOLUTION.

At a meeting of the Stockholders of the Spring Valley Water Works, held on the 16th day of June, 1875, the following resolution was unanimously adopted:

Resolved, That the several Reports of the Officers of the Company for the past year be printed and circulated.

Report of the President.

To the Stockholders of the
Spring Valley Water Works:

GENTLEMEN—On the fifteenth of December last I was elected and assumed the duties of President of your Company.

Its policy since that time has been to protect the Works, and make them adequate for the present and future wants of our rapidly growing city, by guarding against droughts, having from two to five years' supply on hand.

To that end we have completed the San Andres Dam, which gives us a total storage capacity of more than eight thousand million gallons, in nine different reservoirs, the elevations and capacities of which you will find in the report of the City Superintendent.

We are having a wrought plate 22-inch main manufactured. It will be completed and laid within the coming three weeks, extending from the College Hill Reservoir to and through Valencia, and to and through Market to Potter street, where it will branch into two

12-inch cast-iron pipes, one going on down Market, the other going down Potter to and through Mission to Spear street.

We have commenced the building of a dam eighty six and a half feet high at the Crystal Springs Reservoir. It will be carried up fifty feet this year, resting on a base of five hundred and ninety-three feet, with an outward slope of three to one, and an inward slope of three and a half to one, and thus add fifteen square miles to our water-shed, and make a Reservoir that will contain seven thousand million gallons, which, with the eight thousand already completed, will give us a storage capacity of fifteen thousand million gallons, in which to store the rainfall of the coming winter.

We will commence the next rainy season with about two thousand million gallons on hand.

The addition of fifteen square miles thereto, as above related, more than doubles our water-shed and puts beyond question the fact that an average rainfall this coming winter will give us a three years' supply.

We will complete the Upper Crystal Springs Reservoir next year, and obtain thereby an additional storage capacity of eight thousand million gallons, making a total of twenty-three thousand millions, (upwards of seventy-five millions per day for three hundred days) and an ample supply for four years, allowing for the increased population.

We have two 30-inch mains conveying water to the city from the San Andres and Pilarcitos Reservoirs;

they have a capacity of twenty-one millions per day. When they become too small for the requirements of the city, we will build a substantial conduit of brick and cement from the Crystal Springs Reservoir to the city, crossing the ravines and gulches with wrought plate pipes. It will be about thirty miles long, large enough to transport one hundred millions daily, will bring the water into the city at an elevation of one hundred and seventy feet above tide water, from which elevation more than three-quarters of the entire city can be supplied, leaving the Pilarcitos and San Andres waters exclusively for the higher elevations. The completion of this conduit will cost about one million dollars, will give an ample supply for the next twelve years, and enable us to have from four to five years' supply on hand during that time without any further expense for construction.

We will then build the Lower Crystal Springs Dam, which will add ten and six-tenths square miles to our water-shed, and make a reservoir that will contain twenty-three thousand million gallons, at a cost of about five hundred thousand dollars. We will then add the fifty miles of water-shed connected with the San Gregorio, Purissima, and other streams belonging to the Company, by bringing them into the Crystal Springs Reservoir, at a cost not exceeding one million of dollars, and thus put beyond question the capacity of our water-shed to so replenish our reservoirs, as that they will, for a great many years, contain from four to

five years supply, allowing for the increased population, and when filled, would contain forty-six thousand million gallons, more than one hundred and twenty-five millions per day for three hundred and sixty-five days.

At the same time being fully impressed with the idea that this is to be a very large city, and that it may grow more rapidly than any of us anticipate, we have thought it advisable to acquire the next most available supply to be found, which is the Calaveras Valley and its one hundred and forty miles of water-shed. It is only about twenty-eight miles distant from our Upper Crystal Springs Reservoir, can be effectually connected therewith in two years' time, at a cost of three and one half millions of dollars, so as to add twenty thousand million gallons per annum to our supply, which would then give the works a storage capacity of sixty-eight thousand million gallons, an ample supply for thirty years.

The Croton Water Works, supplying New York City, has a capacity of one hundred and fifteen millions per day, and is supplying one hundred and four millions; it has cost twenty-five million dollars, and on the first day of April last, the Croton water debt outstanding was sixteen million, two hundred and seventy thousand, one hundred and fifty-five dollars.

Now, by expending six and one-half millions of dollars on our works, during the next twelve or fifteen years, for the completion of the Crystal Springs dam and aqueduct, and bringing in the San Gregorio and

other streams, as also the Calaveras, we can obtain a running supply of one hundred and twenty-five millions per day perpetually, and that, too, with a completed Water Works equal to the best in America.

So much has been said about jobs, swindles, and water rings, in connection with the present management of this Company, that I deem it not out of place to say that we did not embark in this enterprise for any other purpose than that of obtaining a piece of property at the rate of nine and one half million dollars, which we thought worth a great deal more money, had cost in the vicinity of fifteen million dollars, would improve in value every year, and would very soon pay a fair rate of interest ON ITS COST.

A careful examination into the affairs of the Company after we had made the purchase, confirmed our anticipations concerning its value; they disclose that the money received from assessments, water rents, and all other sources, with *simple* interest added at the rate of ten per cent. per annum from the time it was received, up to the thirty-first day of March 1875, was twenty-two million, four hundred and fifty-eight thousand, eight hundred and eighty-three dollars and seventy nine cents. This sum includes all the money that the San Francisco City Water Works, and the Spring Valley Water Works, had received from all sources on the thirty-first day of March last, including ten per cent. *simple* interest thereon from the time it was received to that date.

The dividends paid by the said Companies, together with interest added at the same rate, from the time they were paid to the said thirty-first day of March last amounts to six million nine hundred and eighty thousand six hundred and thirty-five dollars and thirteen cents, leaving FIFTEEN MILLION FOUR HUNDRED AND SEVENTY-EIGHT THOUSAND TWO HUNDRED AND FORTY-EIGHT DOLLARS AND SIXTY-SIX CENTS as being the ACTUAL COST of the works in cash on the said thirty-first day of March 1875.

My predecessor having in view the fact that our works were soon to require heavy and expensive outlays, very wisely sent our Engineer, Mr. Schussler, on a tour of inspection through the Eastern cities and Europe, to acquire a thorough knowledge of all matters concerning sewerage, paving of streets and everything pertaining to the construction of water works suitable for supplying a large city with water, so as to enable us to profit by the experience of others who have been engaged in enterprises of this kind on the largest scale. He has nearly completed a very interesting report which will be printed in a few days and which I recommend to the careful perusal of every person interested in these subjects. It can be obtained, as also the Report of the Secretary and City Superintendent, which are submitted herewith, by application to the Secretary.

REPORT

OF

H. SCHUSSLER, Chief Engineer Spring Valley Water Works.

CHARLES WEBB HOWARD, Esq.,
President Spring Valley Water Works :

My Dear Sir—Agreeably with your request I hand you a Report on the condition and capacity of the Works of the Company and their future.

The Spring Valley Water Works, which furnish the City of San Francisco with water, derive their supply from streams situated in the mountains of San Mateo County; they are parallel to the coast and vary in elevation from six hundred to twenty-five hundred feet above the ocean.

The range nearest to the ocean being the highest, its crest forms an eddy when the westerly and southwesterly winds drive the rain-charged clouds over it, thus discharging bountifully into the valleys immediately east of it.

This seems to be the cause of the annual rainfall in these mountains being nearly one hundred per cent. larger than that in the valley of the bay.

COMPARATIVE RAINFALL.

Year.	Pilarcitos.	San Andres.	San Francisco.
1868–69	48.26 inches.	38.57 inches.	21.56 inches.
1869–70	48.21 "	35.70 "	18.53 "
1870–71	38.88 "	30.52 "	15.21 "
1871–72	78.28 "	82.57 "	38.32 "
1872–73	42.19 "	36.26 "	19.80 "
1873–74	50.31 "	47.63 "	28.23 "
1874–75	41.81 "	42.03 "	22.93 "

Being aware of the fact that a district thickly wooded furnishes a more regular supply of water than a barren one, partly on account of its soil longer retaining its moisture, and partly on account of the ground being shaded, thus diminishing evaporation, the Company have made it a rule to retain their forests in their virgin state over their entire water-shed.

For the purpose of equally distributing the winter's water over the entire year, a series of reservoirs have been built at different elevations and of different capacities.

When the Crystal Springs Lake is completed the system of the Spring Valley Water Works will be divided into three branches, as follows:

No. 1, UPPER CITY SUPPLY.

Pilarcitos Lake.

Elevation 696 feet above tide water; capacity, ten hundred and eighty million gallons. It is connected with the city by an aqueduct consisting of three tunnels,

lined with brick and cement, having an aggregate length of seventy-eight hundred and seventy feet—sixty-nine thousand three hundred and thirty-six feet of 30-inch wrought-iron pipe, and eighty-three hundred feet of flume.

This aqueduct brings the water to the Laguna Honda Reservoir, built of mason work and having a capacity of thirty-three million gallons, at an elevation above tide water of three hundred and seventy-seven feet. From here a 22-inch pipe delivers the water to the highest part of the city in the Western Addition.

No. 2, MIDDLE CITY SUPPLY.

San Andres Lake.

Elevation four hundred and fifty-five feet above tide water, and capacity seven thousand million gallons. It is connected with the city by an aqueduct consisting of three thousand and seventy feet of tunnel, lined with brick and cement, and sixty-four thousand feet of 30-inch wrought iron pipe leading into College Hill Reservoir, near St. Mary's College.

The elevation of this latter reservoir is two hundred and fifty-three feet, and its capacity fourteen million gallons. The water is carried thence eighteen thousand four hundred and eighty feet to the middle pipe system through a 22-inch pipe, which connects with the Market Street Reservoir.

San Andres Lake has the following additional feeders. The Lock's Creek line, seventeen miles in length,

composed of thirty-seven hundred and eighteen feet of 37½-inch pipe, eleven thousand nine hundred and two feet of 22-inch pipe, thirty-three hundred feet of tunnel, lined with brick and cement, and the balance being a flume. This aqueduct brings the waters of Lock's and Apanolio Creeks and of the lower Pilarcitos into the San Andres Lake. Another feeder to this lake is an aqueduct, one and one half miles long, and brings the waters of San Mateo Creek through Tunnel No. 2, of the Pilarcitos line.

These two systems—the upper and middle city supply—can be supplemented by two two hundred and fifty horse power engines and four pumps at Black Point, delivering the two million gallons of water per day furnished by the Lobos Creek aqueduct into the two Russian Hill reservoirs.

The daily capacity of the Pilarcitos and the San Andres aqueducts leading into the city is nearly twenty-one million gallons.

No. 3, LOWER CITY SUPPLY.

Crystal Springs Lake.

Elevation three hundred and five feet above tide water. The capacity of the reservoir now being constructed will be fifteen thousand million gallons. When the lower main dam is completed, its capacity will be forty thousand million gallons; it is to be connected with a reservoir near the Industrial School, of a capacity of two hundred million gallons, and at an eleva-

tion of one hundred and seventy feet above tide water, by an aqueduct, thirty miles in length, having a daily capacity of one hundred million gallons.

A pipe of five feet diameter will conduct the water from this distributing reservoir through the deep railroad cut and along Mission street to the city front, branching off at each crossing, and so supply the entire lower business portion of the city, both north and south of Market street.

CITY PIPE SYSTEM.

For the purpose of distributing the water through the city, there are laid in the streets one hundred and forty seven $\frac{3124}{5280}$ miles of cast iron pipes, ranging from twenty-two inches down to three inches in diameter, being connected respectively with the upper and middle supply with the seven city distributing reservoirs, which have an aggregate capacity of sixty and three quarter million gallons.

On account of the rapid increase of consumption of water, the Company is now engaged in laying large circulating mains, the present one being twenty-two inches in diameter, for the purpose of increasing and better distributing the pressure all over the city.

THE REAL ESTATE OF THE SPRING VALLEY WATER WORKS

Consists of thirty-four fifty-vara lots in San Francisco, and lot 23x137½ on California street, between Kearny and Montgomery streets. At Lake Honda sixty-three acres. At College Hill eight and one quarter acres.

At Mountain Lake and Lobos Creek fifty-two and one half acres. In San Mateo County: at Pilarcitos, fifty-three hundred and thirty-four acres; at San Andres, fifteen hundred acres; at Lock's Creek, eleven hundred and fifty acres, and at Crystal Springs, fifty-two hundred and eighty-five acres. Total in San Mateo County, thirteen thousand two hundred and sixty-nine acres.

WATER-SHED.

From the first of January, 1868, to the first of January, 1875, the average rainfall over the entire available water-shed of the Spring Valley Water Works, was three hundred and five and one half inches, which furnished over and above the total evaporation, for these seven years, six and one-seventh million gallons of water for every square mile of water-shed for every inch of rainfall.

By constructing the lower Crystal Springs dam we will have a water-shed of thirty-nine square miles, which is fully three times the area of the water-shed available heretofore.

We shall postpone the immediate construction of the lower Crystal Springs Reservoir, and build the so-called Upper Reservoir, which will give us a total of twenty-eight and fourth-tenths square miles.

Estimating only forty inches of annual rainfall (although the average for seven years as before stated was forty-three and one half inches) on twenty-eight and four-tenths square miles it will yield sixty-nine

hundred and sixty-six million gallons per annum, which is at the rate of six million one hundred and thirty-two thousand gallons annually per square mile per inch of rainfall, actually caught and utilized.

Year.	Amount of water, in million gallons, caught every year to June 1.	Aggregate of water caught to June 1 of every year.	Annual consumption of water exclusive of two millions daily from Lobos Creek.	Aggregate consumption to June 1, every year.
On hand, Dec.	Millions.			
1st, 1875.	2,000	Millions.	Millions.	Millions.
1876	6,966	8,966	1,835	1,835
1877	6,966	15,932	4,325	6,160
1878	6,966	22,898	4,938	11,098
1879	6,966	29,864	5,610	16,708
1880	6,966	36,830	6,344	23,052
1881	6,966	43,796	7,143	30,195
1882	6,966	50,762	8,012	38,207
1883	6,966	57,728	8,953	47,160
1884	6,966	64,694	9,972	57,132
1885	6,966	71,660	11,068	68,200

This table shows that from the first December, 1875, to the first June, 1885, a total of seventy-one thousand six hundred and sixty million gallons will have been caught, and during the same period there will have been supplied to the City of San Francisco, sixty-eight thousand two hundred million gallons, leaving a balance on hand of thirty-four hundred and sixty million gallons, which at the rate of thirty million gallons per day (which is the estimated daily consumption in 1885) would only last one hundred and fifteen days.

It is therefore evident that during the year 1883 the construction of the large dam at Crystal Springs must be commenced, that it may be completed by the beginning of the rainy season of 1885–86, to catch the waters of the ten and six-tenths additional square miles for the seasons of 1883–84 and 1884–85, which will give June 1st, 1885, as the result of these two seasons' storage (estimating forty inches annual average of rain) twenty-six hundred million gallons per annum, making fifty-two hundred million gallons for the two years supply, in addition to the seventy-one thousand six hundred and sixty million gallons caught during the last ten years. It should be understood that by constructing the lower dam the upper reservoir will become a part of the whole, their two surfaces being on the same level.

Our Table continues as follows:

Year.	Gallons caught each year.	Aggregate caught to June 1st each year. [1885 has two years of 10 6 10ths square miles included.]	Annual consumption, exclusive of two millions daily from Lobos Creek	Aggregate consumption to June 1st each year.
1885	million galls.	76,860 million galls.	million galls.	million galls.
1886	9566	86,426 " "	12,253	80,453
1887	9566	95,992 " "	13,523	93,976
1888	9566	105,558 " "	14,885	108,861

The above table shows that, owing to the rapid increase of consumption, the waters of the thirty-nine square miles alone will not be equal to the demand in 1888. For this reason the resources of the Company must be increased, and the necessary works be commenced, by the year 1885.

The nearest supply at hand is that furnished by the coast streams, viz : San Gregorio, Purissima, and other streams on the ocean slope on one side, and the Calaveras with its branches on the other.

To make the former available, the waters of the neighboring streams can be conveyed by aqueducts and short tunnels into the bed of San Gregorio Creek, whence, at an elevation of about four hundred feet, the water can be conducted through a tunnel about four miles in length to a point in Bear Gulch, near Searsville, and thence by a short aqueduct over the low divide between the San Francisquito Creek and the Canyada Raymundo into the Crystal Springs Reservoir. By means of this tunnel about sixty square miles of water-shed, having an average annual rainfall of about forty-five inches, would be brought into use, representing a capacity of sixteen thousand five hundred and fifty million gallons per annum.

To make Calaveras practically available for the purposes of the Spring Valley Water Works, a dam of about one hundred and ten feet in height, which is only sixteen feet higher than our present San Andres dam, should be built in the narrow gorge below Calaveras Valley, thus making a reservoir that will contain about twenty thousand million gallons, and its base will be at an elevation (Aneroid measure) of five hundred and sixty feet above tide water.

A tunnel two miles in length will conduct the water through the ridge from a point in the reservoir at a low depression south of Capt. Ellis' house to a gulch east of

Milpitas, its inlet being located forty feet above the bed of the creek to allow for the accumulation of sediment, there being an available depth of sixty-five feet of water above the inlet of the tunnel; the entire length of the tunnel to be bricked in cement. On the border of the lake a shaft of masonry will be sunk down to the tunnel, containing the gates for regulating the flow of the water, as also fish-screens and charcoal filters. At this shaft a pipe five feet in diameter starts and extends the entire length of the tunnel (thereby utilizing the sixty-five feet of water pressure in the lake): thence descending on a gentle slope into the Santa Clara Valley; thence with a gentle southerly sweep past Milpitas and Alviso around the head of the bay, avoiding the marsh lands, and thence to a prominent knoll on the northern bank of the San Francisquito Creek, having an elevation of five hundred feet above the bay; the pipe, including the piece in the tunnel, forming a huge inverted cyphon of twenty-two miles in length.

The water is received at the outlet of the pipe by an aqueduct having a grade of two feet per mile, and running first in a westerly, and then in a northwesterly direction along the eastern side of the Canyada Raymundo, to the San Andres Reservoir, where it would discharge its full capacity over the top of the dam, and when not required in the San Andres, could be diverted into the Crystal Springs Reservoir by simply opening a waste gate in the side of the aqueduct at that point.

When the surface of Calaveras Lake is at high water mark, the pipe will carry fifty-three and one half million

gallons every twenty-four hours; and when it is at its lowest level, so that it freely runs into the tunnel without a head, the pipe will carry forty-one and a half million gallons, making the average capacity forty-seven and a half million gallons per day.

Counting only five and eight-tenths millions gallons eaught annually per inch of rain per square mile in Calaveras, instead of six and one-seventh million gallons, which we obtain on the other side of the Bay, (which reduction fairly allows for the extra evaporation in the Calaveras District,) we will have an annual yield of twenty thousand one hundred and fifty-five million gallons, which is about the capacity of the proposed Calaveras Reservoir, with twenty-five inches average annual rainfall, which is below the average of the last three years.

At its average of forty-seven and a half million gallons per day, the pipe would deliver seventeen thousand three hundred and thirty-seven and a half million gallons per annum, which would be discharged into either the San Andres or Crystal Springs Reservoirs, leaving over twenty-eight hundred million gallons in the Calaveras Reservoir annually; but as we shall construct a lower outlet for Crystal Springs Reservoir separately, the daily capacity of the pipe would rise to sixty-four and a half million gallons, or twenty-three thousand five hundred and forty-two and a half millions annually. Therefore the pipe's annual discharge into San Andres alone being seventeen thousand three hundred and thirty-seven and a half million gallons, and its annual discharge into the Crystal Springs Reservoir alone being twenty-

three thousand five hundred and forty-two and a half million gallons, its average annual discharge would be twenty thousand four hundred and forty million gallons, or fully the product of an entire average rainy season at Calaveras.

The Calaveras system, with proper development, will furnish the nearest large reservoir to be found, that is available for your purposes, in which to store the product of large freshets, and thus enable us to gradually distribute the water through the dry seasons.

Upon close examination I have found the rock in the range dividing the Calaveras from the Santa Clara Valley to be of such a character as to admit of no seapage or leakage into the latter, a fact which the two miles of tunnel diagonally through this very range will prove to your full satisfaction.

As mentioned above, about the year 1885 the construction of additional works, either San Gregorio or Calaveras, will have to be commenced, in order to keep up with the rapidly growing supply. Should the San Gregorio be selected, it will furnish sixteen thousand five hundred and fifty million gallons, provided the whole could be caught, or forty-five and one-fourth millions daily. The Calaveras would furnish through five-foot pipe all its water, or twenty thousand one hundred and fifty million gallons annually, or fully fifty-five million gallons daily; while the original Spring Valley would furnish nine thousand five hundred and sixty-six million gallons annually, or twenty-six and one-fourth million gallons daily.

This would give us for Spring Valley and San Gregorio connected, twenty-six thousand one hundred and sixteen million gallons annually, or seventy-one and one-half million gallons daily, while if all three schemes are connected, we should have the following supply:

	Annually.	Daily.
Spring Valley, - - - - -	9,566 millions.	26¼ millions.
San Gregorio, - - - - -	16,550 "	45¼ "
Calaveras, - - - - - -	20,150 "	55 "
Total, - - - -	46,266 millions.	126½ millions.

We thus obtain a perpetual daily supply of one hundred and twenty-six and one half millions, while we have a storage capacity of over one hundred and eighty-six millions per day for three hundred and sixty-five days.

The table of annual consumption continues as follows.

Year.	Total caught up to June 1st.	Water consumed annually, exclusive of two million gallons daily from Lobos Creek.	Aggregate consumed up to June 1st, every year.
1886	86,426 mill. galls.	12,253 mill. galls.	80,453 mill. galls.
1887	95,992 "	13,523 "	93,976 "
1888	....	14,885 "	108,861 "
1889	....	16,341 "	125,202 "
1890	....	17,896 "	143,098 "
1891	....	19,553 "	162,651 "
1892	....	21,316 "	183,967 "
1893	....	23,188 "	207,155 "
1894	....	25,174 "	232,329 "
1895	....	27,276 "	259,605 "
1896	....	29,499 "	289,104 "
1897	....	31,846 "	320,950 "
1898	....	34,321 "	355,271 "
1899	....	36,927 "	392,198 "
1900	....	39,668 "	431,866 "

If an annual supply of twenty-six thousand one hundred and sixteen million gallons, comprising Spring Valley and San Gregorio and adjoining streams, should be furnished from June 1st, 1887, to June 1st, 1899, we should have caught for these twelve years twelve times twenty-six thousand one hundred and sixteen million gallons, or three hundred and thirteen thousand three hundred and ninety-two million gallons in addition to the ninety-five thousand nine hundred and ninety-two million gallons, making a total, June 1st, 1899, of four hundred and nine thousand three hundred and eighty-four million gallons, while up to that date there was consumed a total of three hundred and ninety-two thousand one hundred and ninety-eight million gallons, leaving a surplus in the reservoirs of seventeen thousand one hundred and eighty-six million gallons. There being no suitable reservoir sites on the coast streams of sufficient dimensions to catch the bulk of the waters furnished by freshets, the aqueduct from these will have to be very large in order to catch the amount of water alluded to in these calculations, as otherwise during a freshet a great deal of water will run to waste into the ocean after the aqueduct is running full.

The advantage that the Calaveras has over the San Gregorio, is the large compensating reservoir which would store the product of the freshets and allow it to be evenly distributed over the summer season.

Much has been said of late against the water-shed or cachement system, and in favor of running rivers, but

during my late trip through the East and Europe I became convinced that water drawn from natural lakes, or from large and deep artificial reservoirs, was more suitable for city supply, and purer than that drawn from rivers, however large, which drain extensive areas of agricultural and manufacturing districts, and which hold in suspension a great deal of vegetable and mineral impurity. Examples of this may be seen in the water furnished to some of our Eastern cities, and also in that supplied to London and Paris.

The city of Glasgow, in Scotland, on the other hand, being the best supplied city in the world, draws a large and never-failing supply from Loch Katrine, a clear and extensive mountain lake at a high elevation, comparatively near the city.

We have lakes similar to Loch Katrine in our own State, but it would cost an outlay of from twenty-five to forty million dollars to bring from them to San Francisco a sufficient supply of water for the next fifteen years, or say fifty millions per day.

The mountains in the vicinity of the coast at a short distance from San Francisco, being of sufficient height, and having a proportionally large rainfall and admirable reservoir sites, the Company have accomplished the next best thing to a natural lake supply, by making large artificial lakes, and thus retaining the water which would otherwise be running to the sea.

The Canyada Raymundo seems to have been originally a lake of large extent, until the water rose to such a height that it forced an outlet near the old Crystal Springs Hotel.

Gradually, perhaps during thousands of years, this channel was worn down to its present level, the San Mateo Creek.

Supposing that the natural barrier which in ancient times formed this lake in the Canyada Raymundo was intact at the present day, forming a large lake of nine or ten miles in extent, and containing forty to fifty thousand million gallons of water, it would be folly not to avail of it for supplying San Francisco, and go hundreds of miles into the Sierra Nevadas for the purpose of getting a so-called running supply from one of the mountain streams at an immense expense, simply for the purpose of having running water in preference to stored water.

I simply cite this Canyada Raymundo to show what the Company has been doing during past years at Pilarcitos and San Andres, and intends to do at Canyada Raymundo and Calaveras, and that is to replace in a very substantial manner the barriers that originally formed the lakes, and add thereto safe waste weirs of cast-iron and mason work, so as to control the freshets during the time the lakes are filled.

Yours respectfully,

H. Schussler,

Chief Engineer Spring Valley Water Works.

San Francisco, June 16th, 1875.

REPORT

OF THE

SECRETARY OF THE SPRING VALLEY WATER WORKS.

To CHARLES WEBB HOWARD, Esq.,
President Spring Valley Water Works.

My Dear Sir :

Since the last annual meeting, the increase of the business of the Company has been very gratifying. My experience with the Company dates from its incorporation, and the past year has been the largest yearly increase that we have had. The large number of houses erected, together with the large number in process of erection, has made it necessary to increase our force in all of the various city departments. We have doubled the force in the service connection, or tapping department, and still it is difficult at times to accommodate the applicants as speedily as they desire.

The collections for the year, from water rents and service connections, have been as follows:

1874—In June	$88,765	35
" In July	88,430	12
" In August	87,554	32
" In September	90,889	36
" In October	91,164	40
" In November	88,746	46
" In December	104,267	00
1875—In January	81,789	15
" In February	86,308	76
" In March	93,840	50
" In April	94,332	88
" In May	94,545	88
Making a total of		$1,090,634 18
Less the amount received for service connections		19,000 55
Making the total Water Rents		$1,071,633 63

The gain in the monthly revenue, since May, 1874, is $9,306 26. The Company has furnished 3,605 gallons of water for every dollar that it has received during the year for water rents. The present monthly expense for maintenance and the running of the works is about $8,300. The total receipts from all sources have been $1,397,729 41. The total disbursements have been $1,603,859 73. The floating debt of the Company is $387,559 90, occasioned by the purchase of land for the Crystal Springs Reservoir and the work thereon, as also the completion of the San Andres Dam.

The stock of the Spring Valley Water Works has never been watered, unless it can be said to have been in March, 1868, when it was increased 20,000 shares, and divided pro rata among the stockholders, who paid $58 per share for it, the $1,160,000 obtained thereby having been expended in the construction of the works.

Agreeably with your request, I have very carefully examined the books of the San Francisco City Water Works and the Spring Valley Water Works, with reference to all the moneys they have received from all sources; also the number and amount of dividends they have paid, up to, and including, March, 1875, and they plainly exhibit that the San Francisco City Water Works received, from October 31st, 1858, to, and including, October, 1865, the sum of.... $1,655,605 71 and no more.

The interest on this amount, from the time it was received up to the said 31st of March, 1875, at the rate of 10 per cent. per annum, simple interest, amounts to the sum of.....	2,226,842 66
The Spring Valley Water Works received from and including August, 1860, to and including March, 1875, from all sources, the sum of.....	11,792,884 59
The interest on this amount, at the rate of 10 per cent. per annum, simple interest, from the time it was received to the 31st of March, 1875, amounts to.....	6,783,550 83
Making a total of.....	22,458,883 79
Amount carried forward.....	$22,458,883 79

Amount brought forward.....		$22,458,883 79
The total amount of dividends paid by the said Companies are as follows :		
The San Francisco City Water Works paid from, and including July, 1861, to and including January, 1865, eight dividends, amounting in the aggregate to.....	$247,155 00	
The interest on the said dividends, from the time they were paid to the said 31st of March, 1875, at the rate of ten per cent. per annum, simple interest, amounts to.....	315,618 23	
The Spring Valley Water Works paid, from and including August, 1863, to and including February, 1875, one hundred and eighteen dividends, aggregating	4,454,407 18	
The interest on these dividends, at the rate of 10 per cent. per annum, simple interest, from the time paid to the 31st of March, 1875, amounts to	1,963,454 72	
Total dividends and interest is.....		6,980,635 13
And which, deducted from the assessments and receipts from all sources, with interest, as aforesaid, leaves.....		$15,478,248 66

Which was the actual cost of the works on the 31st day of March, 1875.

In conclusion, I would call your attention to the fact that the present office is entirely too small for the transaction of the business of the Company.

Yours respectfully,

E. M. MILES, SECRETARY.

San Francisco, June 16th, 1875.

STREET PAVEMENTS:

AS VIEWED BY

G. K. FITCH, ON THE ONE SIDE, AND H. F. WILLIAMS, ON THE OTHER.

[San Francisco Bulletin, Dec. 15th, 1876.]

ANOTHER PATENT PAVEMENT PROJECT.

Patent pavements are epidemic in San Francisco. The city has been sorely afflicted with them.

First we had the wood pavement, which, at the close of a sharp storm, left our streets as if there had been an upheaval by a miniature earthquake. After the tax-payers had been pretty severely fleeced for three or four successive experiments of this kind, we were then assailed with the hydro-carbolized brick nuisance. And now, before we have recovered from the last named infliction, we are threatened with another, bearing the euphonious nomenclature of a "Composite Pavement."

This hybrid material, we are informed, is composed of two substances—wood and stone. But, in this connection, it strikes us that the citizens of San Francisco are perfectly satisfied with and prefer stone "straight" without its admixture or combination with wood or any other substance.

Of the merits or demerits of this composite pavement it is not possible now to determine; but before the city sanctions any new order of pavement, there ought to be nothing uncertain about its cost and durability. As yet, nothing is known of these material points beyond the statements of the patentee. * * * Until any patent pavement has been thoroughly tested, tax-payers will

thank the Supervisors to leave its severely alone. We hope the Street Committee will recommend this course with regard to the application on behalf of the composite pavement, submitted to them last Monday. * * * * * * *

Stone has answered for paving purposes two or three thousand years. It was used in the ancient cities of Greece and Italy.

Nobody wants a change but some speculator who hopes thereby to make a raid upon the City Treasury. Stone is plentiful all over California. The streets which are well paved with stone blocks are giving satisfaction. Any change can only benefit a ring, not the tax-payers.

[San Francisco Chronicle, Dec. 17, 1876.]

COMMUNICATION OF H. F. WILLIAMS.

To the Editor of the Chronicle — SIR: On Monday last I addressed a communication to the Board of Supervisors, of which the following is a copy, to wit:

To the Honorable the Board of Supervisors of the City and County of San Francisco—GENTLEMEN: It is a fact well known to some of your members, and to all my intimate personal friends, that for many years past I have made the subject of street paving a study, and as the result of much thought and close observation have hit upon a device for a composite pavement, which possesses, as I claim, especial advantages. It combines the conceded merits which are accorded stone, wood and asphaltum (when considered separately), and dispenses with the weak points of each of said materials.

At the recent Centennial Exposition in Philadelphia the merits of my pavement were subjected to the rigid scrutiny of a number of the best experts in the United States and Europe, and, to my great satisfaction, were approved by all in the most decided and unqualified terms.

Now, if my patent does really possess the merits which I claim for it, and which others so freely accord to it, I desire to share it with this the city of my choice and adoption; and, as an evidence that this declaration is sincere, I take this early opportunity to announce that so far as this city is concerned I will never make any charge whatever for royalty, but will issue a license to any person to lay it, free of charge, and with no restrictions other than to require the use of suitable materials and good workmanship, that its reputation may not be tarnished by the use of indifferent materials and poor work. A restriction of that character will

simply place all contractors on precisely the same footing, and insure fair competition and honest work, to which no one should object.

In order to bring the merits of my pavement squarely before the public for a thorough and practical test, I desire permission from your honorable body to lay down several samples, at my own expense, upon some of the accepted streets of the city, and would suggest that spots be selected where it will be subjected to the heaviest traffic and hardest usage that any style of pavement is expected to sustain.

Respectfully, etc.,

HENRY F. WILLIAMS.

SAN FRANCISCO, December 11, 1876.

WILLIAMS' COMPOSITE PAVEMENT.

To all whom it may concern: I most respectfully submit my pavement, and earnestly ask for a careful examination into its merits, as the subject is one of universal interest and great importance.

From those who can free themselves of prejudice or preconceived notions which are not sustained by established facts, I sincerely desire a fair criticism, and will be thankful to be undeceived if my claims are mere assumptions.

What is claimed for my pavement is, that it provides against the defects which experience has shown to exist in the several pavements now in general use, and it combines successfully, as I think, the acknowledged merits of the only materials which have been applicable to street paving the world over, viz: Stone, wood and asphaltum.

By my peculiar device, I utilize the best properties of each of said materials in the most limited quantities consistent with economy and durability.

Experience has proven that wooden pavements perish at the base from decay, and not on the surface from wear. It has also proven that stone pavements perish on the surface from wear, and not at the base from decay.

For these reasons I have adopted stone as a base, and wood as a covering, with asphaltum as an unyielding bond to hold them together. My asphaltum also serves to hold on the surface a coating of clean, sharp sand till it becomes imbedded into the wood, thereby forming a hard crust.

My stone I use in the form of concrete to secure a solid bed or base, which will not rot, but become an enduring substitute for the lower half of wooden blocks.

My blocks I reduce to three inches in length only, deeming that sufficient to sustain any wear to which a sound block of wood can be subjected, if held rigidly in place.

And I reduce them to one inch in thickness in order to most effectually season the lumber, and thereby destroy the seeds of dry rot which are almost inseparable from thick plank.

These blocks I place compactly together, with the fiber in a vertical position, and unite each to the other by the adhesive and enduring cementing qualities of refined asphaltum, which, when properly prepared, will unite fragments of wood as firmly as though they had thus grown together.

I thus virtually manufacture plank with the grain or fiber in a vertical position, and thereby securing the increased wearing capacity which experience has demonstrated to exist between the vertical and horizontal fiber—certainly five to one, with the same body of material.

This plank, when firmly bedded on the stone base, is not subject to any yielding except that which is imparted by the wood itself, and that is just sufficient only to prevent the abrasion which is inseparable from a rigid surface.

By the adoption of a surface of wood and a base of stone cemented together with asphaltum, I aggregate no greater cost of materials than would be required for any other style of pavement now in use, of either stone, wood or asphaltum, used separately, and yet I secure an elastic and non-wearing covering to a rigid and non-decaying base, by the use of a cement which the experience of ages has proven to be the best known to man for uniting wood to wood, stone to stone, or both together, where the effects of moisture are to be guarded against.

The first cost of my pavement will be less than any other first-class pavement now in use, and its renewal (when renewal becomes necessary) will be limited to the surface coating only, for the stone base (being protected from wear) cannot suffer any deterioration in scores of years. Such a renewal will entail an expense of only about one-third of first cost, so that a pavement which costs originally 30 cents per square foot can be renewed, when necessary, for 10 cents per square foot, and become in every respect as good as when first laid.

Can as much be claimed for any other known pavement?

Now these are not mere assumptions, but facts which can be clearly and easily demonstrated.

When my pavement is properly laid with suitable materials, I will furnish the most satisfactory guarantees (in the shape of valuable deposits) that it shall be kept in good order perpetually for half the cost attending the repairs and renewals of a like amount of the best stone block or cobble-stone pavements, while the first cost shall be somewhat less.

Should not facts like these commend themselves to all city corporations that are in the habit of assuming the care and maintenance of paved streets after their acceptance from the hands of the property-holders?

Is not every property-holder and tax-payer directly interested in seeing the cost for maintaining accepted streets reduced to the minimum?

Is not every individual interested in having the most comfortable pavement for man and beast, when the cost is less than for others less comfortable?

I propose to use only such lumber as that used in laying the sample of Stow pavement at the intersection of Montgomery and California streets.

That piece of pavement was laid with "black-heart" redwood and asphaltum, and presents as marked contrast to the ordinary pavements, laid with Oregon fir and coal tar, as may be observed in contrasting the best broadcloth with the poorest shoddy.

I desire to call especial attention to said sample of pavement, for it has been subjected to the traffic of one of our busiest thoroughfares for nearly five years, and shows no signs of wear or decay.

If there is a better sample of pavement of any kind in the city of San Francisco, I am at a loss to know where to look for it.

HENRY F. WILLIAMS, Inventor,
San Francisco, Cal.

Said communication was received and referred to the Street Committee, and I, as the party most deeply interested, am perfectly willing to abide the result which their report will develop. But not so with the *disinterested* proprietors of the *Evening Bulletin*. A long and labored editorial by the presiding genius of that sheet, which appeared in the issue of Friday, the 15th inst., shows that *he* is not willing to await the investigation and report from said Committee, but has tried to forestall public opinion, and has again committed the blunder of which he has so often before been guilty, viz: of trying to enlighten the public upon a subject which he himself did not understand.

He committed precisely the same blunders in his editorial of February 11, 1874, and had then to virtually admit his errors by silence when his false premises and falser deductions were exposed to fair criticism.

I have made the subject of street paving a study for years past, and can claim, I think without egotism, to understand it much better than the editor of the *Bulletin*.

The editorial in question, if dissected by one at all familiar with the subject, will be found a mere tissue of false statements and still falser deductions, without at all touching upon the merits of my communication to the Board of Supervisors, which called it forth. As proof of that fact, I simply request all persons at all interested in the subject to first read my communication and then the editorial in question; and I will be perfectly content to abide the result of their conclusions.

HENRY F. WILLIAMS.

[Editorial from Evening Bulletin, Jan. 11, 1877.]

THE PATENT-FIEND.

Mankind is more greatly indebted to the inventor than to any other individual. His ingenuity has relieved human labor and human want, and his skill opened up new and profitable fields of industry. The arts and the sciences are alike his debtors. But, like all other invaluable agents, he has his counterpart. That counterpart presents itself in the person of the patent-fiend. The patent-fiend is ubiquitous. He crops out in every branch of human industry. He invades every department of life. He pays no regard to privacy, and has no dread of publicity. He is not a respecter of persons, places or things. His adaptability is as broad as the wants of man, and he is as multiform as those wants are numerous. Sometimes the patent-fiend aims to be useful. He is sometimes strictly ornamental, but he is often absolutely mischievous. He manipulates almost everything within the range of human knowledge. The bread we eat, the water we drink, and the air we breathe, have, in many cases, passed through the hands of the patent-fiend.

The patent-fiend is honest only when it is to his interest to be so. In the walks of private life he is usually on his good behavior. He seldom appears at the threshold of a dwelling in a discreditable *role*. It is only when he interviews a corporation, or hobnobs with a municipality, that the patent-fiend gives license to his vices. On such occasions he is very hypocritical. He will introduce himself as a public benefactor, and is full of promises of good accomplishments. He understands thoroughly the machinery of public bodies, and he secretly works it. He usually closes his career as a parasite, seeking the very life-blood of the corporate body, and hastening its decay. What municipality has ever profited from an acquaintance with the patent-fiend? What a glorious harvest

field to him the municipal domain has always turned out to be! What a vacuum he always creates in the municipal treasury whenever he manages to worm his way into it!

The patent-fiend delights above everything to handle public improvements. He is never happier than when permitted to experiment with public streets. But he has never been known to improve them. His path has been usually strewn with the ruins of his handiwork. He is not averse to grappling with the mighty earthquake and tinkering the walls of public buildings. He will even humble himself to manipulate sidewalk curbs and sewer cesspool covers. He will not reject the position of a corporation harness-maker. He knows how to turn each one to account, and how to get double the value of his labor. He doesn't care a straw for its durability. He prefers, if anything, that it should be short-lived.

San Francisco has been in the hands of the patent-fiend for years. He has left his finger-marks on every public street. He has carved his name on every public edifice. His brand is fixed on every corner curb. The public cattle chafe under his livery. The public crib is being exhausted by his rapacity. But the patent-fiend himself waxes fat on what is little better than plunder.

The patent-fiend of San Francisco devotes most of his attention to street paving. He has worked them steadily for years. He has discovered a weak spot in the municipal machinery in its relation to pavements, and he has used the knowledge to his own profit. He has manipulated wood and sand, gravel and asphalt, burned clay and boiled pitch. He threatens to introduce a new conglomerate of pitch and gravel, and still another of asphalt, gravel and wood.

The bump of invention is well developed in the patent-fiend, and there is no knowing how many more conglomerates he may have in store. He tries hard to imitate nature, but he has not yet succeeded, and never will so long as he operates with inferior material. There is no hope that the patent-fiend will cease to cultivate his inventive skill while he receives pecuniary encouragement from his public patron. The only way to suppress him is to bar the doors of the public treasury against him.

Proposition of Messrs. B. & J. S. Doe to Pave Third Street with the Williams Composite Pavement.

San Francisco, March 30, 1877.

To the Honorable the Mayor and the Board of Supervisors of the City and County of San Francisco:

Gentlemen: We, the undersigned, having noticed the fact that several propositions have recently been made to your honorable body for the re-paving of Third street, from Market to Bryant street, beg leave to submit the following for your consideration:

We will contract to pave said street with the Williams Pavement, similar to the sample just laid in front of the Palace Hotel, in New Montgomery street, for the sum of two dollars and seventy-five cents ($2 $\frac{75}{100}$) per square yard, and will guarantee to keep the same in good repair for a period of ten years, free of charge to the city. And after that time will maintain it in good repair from year to year for twenty-five cents per yard, or for a sum equivalent to the average cost for maintaining the stone block pavements on streets subject to a like amount of travel.

The old cobbles we will remove to the corporation yard for $1 per ton, and they will be worth just as much to the city for repairing other streets as new cobbles would be, which cost $5 per ton.

Respectfully, your obedient servants,

(Signed) B. & J. S. Doe.

[Editorial from Evening Bulletin, April 6th, 1877.]

THIRD STREET AND PATENT PAVEMENTS.

To the ordinary observer there is nothing peculiar about that portion of this municipality known as Third street. It is a public highway, upon the roadway of which a large amount of traffic daily passes and repasses. Traffic comes and traffic goes, and might go on, if not forever, at least for a long time to come. But Third street, from Market to Bryant, is paved with that durable material ycleped cobbles. In the eyes and to the minds of certain people or rather certain interests, this is nothing less than municipal sacrilege. The existence of any solid material of this character is an unpardonable offense. The patent pavement fiends have marked Third street for their prey, and if they don't get it the fault will not be theirs.

For the last two months, at every meeting of the Board of Supervisors, applications have been received applying for a contract to tear up the cobbles and lay down instead, not solid basalt or granite blocks, but a patent pavement. Last Monday there were two such applications. Now, so far as we have heard, there is no general complaint among teamsters concerning this roadway. The Board is not flooded with petitions from property-owners that the present condition of the street retards traffic, impedes commerce, and will soon transform this thoroughfare from an emporium of trade into a howling wilderness. Judging from the pertinacity with which the patent pavement contractors inflict their propositions on the city, one might suppose that the present and future welfare of the Pacific Coast metropolis all depended upon substituting some patent pavement in Third street for the existing material.

The applications cover all kinds of schemes. One man wants to lay the William's pavement, another an asphaltum, a third to take up the cobbles and relay them in concrete, and so on. The fame of this street has even reached the shores of the Atlantic, for one firm has sent from Massachusetts soliciting the job. This is only one of many illustrations of the raids perpetually made on the City Treasury. It is, perhaps, true that cobble-stone pavement is not so desirable as other stone pavements. But we do protest against the unnecessary tearing up of an important thoroughfare for the benefit of one or two individuals, who only propose a temporary improvement.

Third street is one of the chief avenues of trade in the city. Through it passes a large amount of heavy traffic. The cobbles now there will outlast any two patent pavements that can be put down. When it is necessary to replace them, let the material used be equally durable—basalt or granite blocks.

[Editorial from Evening Bulletin, May 22d, 1877.]

FIRST MOVE SINCE THE PRIMARIES.

There was a resolution offered yesterday at the Board of Supervisors which in a mild way will bear watching. The *Bulletin* has before alluded to the attempted raids on the City Treasury via Third street. This street, from Market to Bryant, is paved with cobbles. And for the past six months there have been a never-ending succession of applications on the part of patriotic and disinterested contractors to take up these cobbles and lay down in their place a new-fangled pavement. Yesterday Mr. Boyce offered

a resolution which was referred to the Street Committee, that bids be invited to pave this street with "WILLIAMS' COMPOSITE PAVEMENT."

Only a Supervisor could have suggested inviting bids for a patent pavement. Everybody else understands that such a procedure is a sham. And we hardly like to suggest that Mr. Boyce is not so well informed on this subject as the average citizen. There can be no competition where one man only owns the patent right. This is so clear that it is a waste of words to further discuss the matter. Then, as to patent pavements, if there is one thing that has been settled by the citizens of San Francisco, it is that they want no more patent pavement frauds.

But it is in another light that we direct attention to this resolution. There was recently held a certain primary election. The result of that election, if it has not been an entire victory for the Mannix and Brady crowd, has, at least given that party great influence in the forthcoming conventions. Now, politicians who profess to be on the inside assert that for Mannix and Brady read Captain Mullan, Joseph Nougues, H. F. Williams, and some other lights in the Democracy, and you will come near the truth. As matters now stand, it looks as if Mr. Williams was trying to trade votes in the forthcoming convention for his patent pavement. We say here, if Mr. Williams or any other contractor seeks to get the best of the city in this way, he will assuredly be mistaken. And further that no Supervisor who has any future political ambition can afford to join such a compact. The people will carefully scrutinize the vote of every member of the Board in schemes like this for repaving Third street with an experimental material, without competition.

[Editorial from Evening Bulletin, May 26th, 1877.]

NEW-FANGLED PATENT PAVEMENTS.

On Monday next the Street Committee of the Board of Supervisors will probably report on the bids received at the last meeting for paving Webb street, from Sacramento to California with hydro-carbonized brick. We do not wish to prejudge the decision of the Committee, but may presume that they will recommend the acceptance of the two bids presented. Our protest on behalf of the tax-payers is against the acceptance of any bid for any patent pavement. We have argued the question time and again, and do not care now to enter the arena of debate. We, however, reiterate our former statements, that advertising for bids i a sham. Whatever bid is accepted only one man, Phil. Cadue, ca

carry out the contract. When the Superintendent of Streets certifies to the execution of this contract, the repair of Webb street will henceforth be a charge upon the city. In justice to the tax-payers we adhere to our former allegations, that it is unjust for any Board of Supervisors to thus thrust a burden upon the community.

There would be some consolation in the fact that hydro-carbonized brick is pretty well played out, were it not that those men who have been raiding on the City Treasury for years have prepared to attack the tax-payers from another quarter. The last new thing is the Williams' Composite Pavement. A resolution directing the insertion of advertisements for the paving of Third street from Market to Bryant with this material was referred to the Street Committee on Monday last. A report on the resolution may be submitted at the meeting of the Board next Monday. The public have been informed of the circumstances under which this new scheme is presented. The whole business savors of jobbery by ward politicians.

If Third street requires re-paving, the Board can lay down granite or basalt blocks. The State abounds in these substances. Competition ensures offers to supply either at reasonable rates. We all know that good paving stones endure for a generation. Of the Williams patent we know little or nothing. But we are cognizant that in the past the City Treasury has been bled freely by patent pavement schemes engineered by this same Mr. Williams. The condition that bonds shall be required to keep the street in order for ten years amounts to nothing. The Stow, the Nicolson, and all other patent pavement abortions, have been foisted upon us under similar pretenses. Five, six and seven-year-old bondsmen have a remarkable penchant for being out of the State when wanted, or else in a position of impecuniosity. It requires no vast powers of logic to demonstrate that the cost of repairing a street cannot be paid by a man without funds. The only result in such cases is, that the city is bound to repair the street and to foot the bill.

The present members of the Board of Supervisors have only six months longer to serve. If these gentlemen wish to retire enshrouded in a halo of glory, the opportunity offers. Forgetting the things which are behind, let them henceforth until the close of their term declare against all pavements except stone. If they will follow this course, we insure them the respect, esteem and good will of the whole community when the time arrives for retirement from office.

materials for street-paving, while greatly magnifying the advantages of stone, of every kind—chief among whom stands the editor of the *Evening Bulletin*. He, either from ignorance or design, has done more to suppress the truth and sow the seeds of error upon this subject than any other newspaper man in this city; and I am prepared with the facts and figures to convince any fair-minded person of the truth of this assertion.

There was a time when his utterances were much more hurtful than now, for his *ipse dixit*, whether sustained by facts or not, carried conviction to the minds of a large number of our citizens.

Thanks to Divine justice, the light of truth is dawning upon the intellects of the dullest of his blind followers, and they are learning to place a proper estimate upon his utterances, upon all subjects.

It is not my purpose now to review his course further than relates to the subject of street paving; but in doing that, I must point out some of his errors in judgment—some of his inferential deductions not sustained at all by attending facts; and in some instances I will show a willful perversion of facts.

He has frequently misrepresented me, individually, and attributed motives for action entirely foreign to my purposes, but I propose to pass them all by, and deal with the subject upon a broader plane than a mere vindication of self.

Mr. Fitch assumes to be the defender of this community against any innovation upon old ideas, *such as prevailed thousands of years ago.*

He seems to think it his special mission to battle with all his energies against the adoption of any improvement which the United States Patent Office deemed worthy of a patent.

In his editorial of December 15th, 1876, which was intended as a review of the whole subject of street paving, he concluded with these *wise* utterances:

"Stone has answered for paving purposes two or three thousand years. It was used in the ancient cities of Greece and Italy. Nobody wants a change but some speculator who hopes thereby to make a raid upon the City Treasury."

Now, in the absence of some one better fitted for the task, I will assume to be the defender of and advocate for progress in street-paving.

It is a subject to which I have given a great deal of thought and attention for many years past, and now fully believe myself prepared to prove to the satisfaction of any fair-minded person that both *comfort* and *economy* demand a discontinuance of the use of stone for street pavements.

Bold assertions, which seem to carry with them strong probabilities are often adopted by unthinking people as conclusive and beyond the power of successful contradiction; and the impressions thus implanted in the mind are often difficult to move.

[Editorial from Evening Bulletin, July 12, 1877.]

THE LAST PATENT PAVEMENT SCHEME.

The Street Committee of the Board of Supervisors have before them two bids for repairing the westerly half of Sansome street, between Bush and Pine streets. One is to pave the street with the Williams composite pavement, the other with basalt blocks. The contract price for the Williams composite pavement is 30 cents per square foot: for the basalt blocks, 22½ cents per square foot. In the case of the proposals to pave Third street with a new-fangled material, the Committee wisely resolved to reject all the bids and re-advertise for paving with stone blocks. The Committee cannot do better than follow a similar course in this instance, if the terms of the advertisement under which the bids were received preclude them from accepting the offer to pave with basalt blocks, at twenty-five per cent. less than the price demanded for the Williams pavement. In all the cases which have recently come before the Board of Supervisors, it has been shown that stone blocks are cheaper than any patent pavement. That stone blocks are the most durable there is no question. There can, therefore, be no reason to lay down any patent pavement except to serve some favorite contractor. The Williams pavement has not received in this city a sufficient test to justify its use under any circumstances. It has never been declared an official pavement for the city. It could not be laid down in this case if Sansome street had not been accepted by the city. Why, then, should the Board of Supervisors seek to saddle upon the city a pavement which might be repudiated if the cost of repaving had to be borne by the property-owners?

[Card No. 1.]

TO THE PUBLIC.

The subject of street-paving, broadly considered, is less understood, I think, in San Francisco, than almost anywhere else, and the cause lies in an unexplained, if not on *an insane* desire on the part of certain newspaper editors to mislead the public by an utter perversion of facts.

It has been their practice, in season and out of season, to deny or withhold facts favorable to wood and asphaltum, as suitable

materials for street-paving, while greatly magnifying the advantages of stone, of every kind—chief among whom stands the editor of the *Evening Bulletin*. He, either from ignorance or design, has done more to suppress the truth and sow the seeds of error upon this subject than any other newspaper man in this city; and I am prepared with the facts and figures to convince any fair-minded person of the truth of this assertion.

There was a time when his utterances were much more hurtful than now, for his *ipse dixit*, whether sustained by facts or not, carried conviction to the minds of a large number of our citizens.

Thanks to Divine justice, the light of truth is dawning upon the intellects of the dullest of his blind followers, and they are learning to place a proper estimate upon his utterances, upon all subjects.

It is not my purpose now to review his course further than relates to the subject of street paving; but in doing that, I must point out some of his errors in judgment—some of his inferential deductions not sustained at all by attending facts; and in some instances I will show a willful perversion of facts.

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Now, in the absence of some one better fitted for the task, I will assume to be the defender of and advocate for progress in street-paving.

It is a subject to which I have given a great deal of thought and attention for many years past, and now fully believe myself prepared to prove to the satisfaction of any fair-minded person that both *comfort* and *economy* demand a discontinuance of the use of stone for street pavements.

Bold assertions, which seem to carry with them strong probabilities are often adopted by unthinking people as conclusive and beyond the power of successful contradiction; and the impressions thus implanted in the mind are often difficult to move.

Under this head comes the assertion "that stone blocks will *wear* much longer than vertical wooden blocks when used for street-paving."

It is, perhaps, safe to assume that nine out of ten persons, inexperienced on the subject, would unhesitatingly adopt that assertion *as a truth*, and yet the opposite is invariably demonstrated by practical tests, as shown by the reliable reports of eminent engineers everywhere.

Mr. Fitch, in his editorial above alluded to (December 15th, 1876), says: "No amount of theory can demonstrate that solid stone will not wear longer than wood."

Perhaps not, if the theories are to be promulgated by persons like himself; but I will not waste time disputing about mere theories, when practical results can be referred to for ocular demonstration.

D. T. Pope, civil engineer, of Liverpool, demonstrated, thirty years ago, in the streets of London and Liverpool, that sound wood on the end grain would wear much longer than the hardest granite. The following is an extract from his able report to the Scottish Society of Arts at Glasgow:

"It seems indeed strange that such incompressible and durable substances as basalt and granite should be more subject to wear with the same amount of traffic than wood with the fiber presented to the pressure and percussion.

"The former, however, when acted on by wheels and horse-shoes, resist the pressure and percussion, and thereby have their particles abraded into a very minute sand, and the iron is also subjected to a diminution in proportion to the stone. On the other hand, wood, from its elasticity, yields to the pressure, and permits the weight to pass over it without any sensible injury to either the wood or the iron."

But, to come nearer home, I need only to refer the candid inquirer after truth, to the streets of our own city, where he will see, at every turn, the results above enunciated.

Take, as an illustration, the intersection of California and Montgomery streets.

The northwest quarter thereof was paved five years since with wooden blocks (black heart redwood), and the northeast quarter was paved two years afterwards with granite blocks, and yet the latter shows *more wear* than the former, as can be seen any day by any one who desires to be informed on the subject.

Numerous other examples can be referred to with like results, but I deem it unnecessary to specify, as I am prepared to prove by an examination of *all* the pavements on our streets that the *wear* to the wooden blocks has been *less* than the stone, under the same amount of travel.

In almost every instance where the wooden blocks have given out it will be found owing to decay and not to wear.

That being true, the only question to be solved is how best to prevent decay. That the wood is more comfortable to man and beast than stone is a point not disputed by any one.

In my next card (and I propose to publish several) I will consider the question of cost fully, contrasting the first cost and the expense for necessary repairs on the various styles of pavement, to see which may justly be considered the cheapest, believing, as I do, that established facts will outweigh mere assertions, let them come from whatever source they may.

H. F. Williams.

San Francisco, July 14, 1877.

[Editorial from Evening Bulletin, July 16th, 1877.]

PATENT PAVEMENTS.

Of all the schemes to obtain access to the city's treasury, that which has for its ostensible object the introduction of patent pavements perhaps promises the best. We have had a sad experience with the Nicholson and Stow wood pavements, and should look with suspicion upon all those which have not had a thorough trial on some leading street of this city. We have experimented enough already, and should allow other municipalities to make a few tests. If we experiment with any of the untried patent pavements we shall probably fare as badly as we did in our trial of the wood. In 1870-1 there was laid a section of wood pavement on Sutter street, between Larkin and Polk, at a cost of about $3,000. During the year 1875–6 it was necessary to replace this pavement with one composed of stone blocks, at a cost of about $3,700. Mission street, between First and Second, was paved with wood in 1870–1, at a cost of $9,600. This pavement was replaced with one of stone in 1875–6, at an outlay of about $9,300. In 1870–1, Hyde street, between Ellis and Eddy, and in 1871–2, Leavenworth street, between Bush and Sutter, were paved with wood, the sections costing respectively $2,700 and $2,600. In 1875–6, both section were repaved with stone, costing respectively $3,000 and $3,400. In the space of five years we may consider that $18,000 were thrown away on these four sections alone. During the past ten years we have expended $516,000 in wood pavements, hardly one of which is now in a decent state of preservation, notwithstanding the large sums which have been expended upon them for repairs in addition to the above original cost. The total amount expended in pavements, for which assessments were levied during the past ten years, is about

$924,000. More than one-half of this sum was paid for patent wood pavements, and may be considered as thrown away. If we allow ourselves to be persuaded to try any more patents, we shall probably have another similar experience.

We have now in this city a great deal of wood pavement which is not only unsightly, but is doubtless dangerous to health. The wood is constantly absorbing moisture and decaying. In most wood pavements when the surface of the wood is dry the bottom is damp. P. Le Neve Foster, of France, Secretary of the Society for the Encouragement of Arts, Manufactures and Commerce, says of a wood pavement: "Its structure is admirably adapted to receive and hold, and then give off in evaporation very foul matters, which taint the atmosphere and so far injure health."

[Card No. 2.]

G. K. FITCH—THE PATENT-FIEND.

During the past few months, several editorials have appeared in the *Evening Bulletin* under the caption of *Patent-Fiend*. Numerous others have appeared under the caption of *Patent Pavements*. Each, however, belching forth unadulterated hatred and venom upon everything in the shape of a patent which had for its object improvements in street paving; all of which pointed unmistakably to the identity of G. K. Fitch himself as the *Patent-Fiend*, who would, if he could, destroy such patents. Now, according to all lexicographers, a *Fiend* is a *Devil*, and all devils are enemies to truth, justice and progress.

Their peculiar province is to pull down and destroy, but never to build up—to hide from view the truth, and substitute error instead thereof.

Webster's definition of a Fiend is "an implacable or malicious foe—one that cannot be appeased—one who is incapable of being pacified—one who is inexorable."

To these well-understood definitions the Editor of the *Evening Bulletin* once added another, for which he was then, and is now, entitled to Letters Patent. The new definition of *Fiend*, added by G. K. Fitch, was "one who will hunt his enemy into his grave, and malign him after he is dead, and not stop there, but grossly outrage the feelings of the mourners for the dead while conveying the body to the tomb."

As proof that he did all this, and has, therefore, a legitimate claim to the distinction of having made an addition to the previously

accepted definition of the word *Fiend*, it is only necessary to refer to the proceedings of ten thousand citizens of San Francisco, in mass meeting assembled, September 9th, 1875, for it was then and there shown, beyond the power of contradiction, that if any man had ever reached a depth of infamy which should entitle him to the appellation of Patent Fiend, it was G. K. Fitch, the Editor of the *E. B.*, and yet he is the man who now, with brazen effrontery, assumes to be the embodiment of wisdom and integrity, and a mouth-piece for the people of the great city of San Francisco.

It is safe to say, however, that, while assuming so much, there is nothing in which he more resembles his great prototype than in his dread of the naked truth.

For one, I am free to say, I am tired of his assumptions and his audacity, and have resolved to unmask his hypocrisy, and will show by his own statements on the one side, and facts on the other, how utterly untrustworthy he is upon all matter where his fiendish desires prompt him to destruction, as they unmistakably do, toward all Patent Pavements.

My next card will be made up of extracts from the *Evening Bulletin*, accompanied with positive proofs of their incorrectness, so that "He who runs may read."

H. F. Williams.

San Francisco, July 20, 1877.

[Card No. 3.]

TO THE PUBLIC.

It has been the steady effort of the editor of the *Evening Bulletin* for years past to misinform the public upon the subject of street-paving, and in so doing he has not hesitated to resort to direct falsehoods to carry his point.

With a special aversion to every thing in the shape of patent pavements, he has so gratified his fiendish propensities as to earn the deserved cognomen of "Patent-Fiend," and no one will now, I think, dispute his title thereto.

In his issue of February 11th, 1874, he devoted a very large space to the subject of street-paving, and congratulated himself in the editorial of the day following, that he had *exhausted the subject.*

A few extracts only are sufficient to show how utterly he failed in that labored effort, unless we adopt the theory that his aim was to deceive those who were disposed to place reliance upon his statements, *as I verily believe.*

After giving a large array of figures derived from official sources he winds up with false deductions and certain general conclusions entirely at variance with the data before him, as the following quotations will show:

"After the opposition we have made to the workings of the Street Department, we would ask any intelligent citizen whether he is willing to be taxed for the purpose of raising any more large sums of money to be dispersed by means of this same machinery, for the improvement of our streets?

"We think there can be but one answer to the question. Look the matter squarely in the face, and see what we have got to show for the above and other millions dollars which have been expended through the Department between July 1856 and July 1873.

"Only 260 wrought blocks—and what are they paved with? 264 of them with material that will require to be renewed sooner or as the others did within ten years after they were laid. Look at the reports that are constantly being made upon the subject. Nuisance and State pavements in this city, and bear in mind that there are 250 blocks paved with such stuff, which the tax-payers have obliged themselves to keep in repair and order. If at least seven millions of the more than twelve millions which have been spent on our streets within a period covering less than eighteen years have not been absolutely thrown away they we confess that our judgment is decidedly at fault in the matter."

Now what say you, candid reader, should be thought of the man who would thus express himself when the very documents (all official) from which he drew his data revealed the fact that the entire cost for all the pavement of every name and nature, which had been accepted by the city, up to the date mentioned, had amounted in the aggregate to only $11,171,887?

What reliance should be placed upon any statements of a man who will declare a waste of $7,000,000 when the official and undisputed documents before him revealed the fact that the entire outlay was only little over one million dollars?

Do not such statements reveal a foolish desire to utterly pervert the truth?

In his last editorial upon the subject of Patent Pavements, which appeared just after my card of the 14th instant, he was much more guarded in his statements than formerly, but the same spirit of unfairness cropped out despite his utmost efforts to the contrary.

In said editorial he gives the total cost of all the patent wooden pavements ever laid in this city at $516,000, which is about correct. But the announcement must have very much astonished some of his readers, who have at various times been led to suppose the sum *ten times as large*. He also refers to four particular blocks that had been laid with wood which, after five years' wear, had

been torn up to give place to stone blocks, viz.: Sutter street between Larkin and Polk; Mission street between First and Second streets; Hyde, between Ellis and Eddy, and Leavenworth, between Bush and Sutter, the total cost of which was $18,000, all of which he declared had been *thrown away*, notwithstanding his admission that they had stood five years' wear.

He gave those four blocks as samples, to show the short duration of the life of a wooden pavement, but had not the honesty to state that each of those samples were laid with Oregon fir lumber, which did not wear out, but perished from decay.

Had he been at all disposed to be fair, he would have also referred to other samples in close proximity to those mentioned, where redwood lumber was used instead of fir, and which are still sound, and almost as good as the day upon which they were first laid.

Had he been disposed to deal fairly with the subject he would not have referred to the Sutter street block, which gave out in five years, without stating at the same time that the next adjoining block, between Polk and Van Ness Avenue (which was laid with redwood), has stood five years' travel, and now shows but very little wear or decay. That, however, is a fact which he evidently does not want known, but it is nevertheless *a truth* which anyone may ascertain by a personal examination.

In the same editorial he says: "The total amount expended in pavements, for which assessments were levied during the past ten years, is about $924,000. More than half of this sum was paid for patent wood pavements, and may be considered *as thrown away*."

Who but the "Patent-Fiend" could be found to make such a declaration under existing facts?

Now, upon what possible theory can the cost of these pavements be considered "as thrown away," except upon the hypothesis that the present stone blocks, had they been laid at the time the wooden ones were, would have stood the service rendered by the wood without the least deterioration?

Is there any one, outside of the "Patent-Fiend" himself, who can be found willing to make such an assertion?

Let any one go now and examine the Mission street pavement and he will find that a single years' wear has wrought a very decided change for the worse.

From the damage already done, it is safe to predict that four years more will render it unfit for further use, and consequently, not any more enduring than the wood which preceded it.

The shameful neglect which has been practised by the Street Department toward all wooden block pavements has been exceedingly prejudicial to that style of paving, and yet there are some thirty or forty blocks which have been down from five to eight years without having had scarcely a dollar spent upon them for

repairs, and still they are in better condition than any equal amount of stone pavement in the city, which has been subjected to the same amount of travel.

All the wooden pavement constructed of redwood can now be repaired and maintained for the next ten years at a much less cost than will be found necessary to keep an equal amount of stone block pavements in good repair. This is not a mere assertion, but a fact, which is now well understood by the Superintendent of Streets, the Street Committee of the Board of Supervisors, and by his Honor, Mayor Bryant, notwithstanding the rash assertion to the contrary by the "Patent-Fiend."

In my next card I will call special attention to the pavements laid with redwood, and will refer to some of the erroneous predictions of the editor of the *Evening Bulletin* concerning them.

H. F. WILLIAMS.

SAN FRANCISCO, July 26th, 1877.

[Card No. 4.]

TO THE PUBLIC.

There are a few facts relative to street paving in San Francisco, which, when properly understood, must, I think, remove from the minds of most people the erroneous impressions which have been implanted and nurtured by the false assumptions and still falser deductions of interested parties, among whom the editor-in-chief of the *Evening Bulletin* stands preëminent.

The only plausible or possible theory upon which stone can be urged as being more desirable than wood or asphaltum for street paving, rests upon the assumption that it is in the long run more economical: but when the opposite is shown by facts and figures which cannot be controverted, the superstructure thus erected must tumble and perish: for error, though based upon the hardest granite or basalt rock, must inevitably be consumed by the burning rays of pure and unadulterated truth.

The cost for a *smooth*, *noiseless* and *comfortable* pavement is so very small, when properly understood, that it is indeed difficult to comprehend the motives which prompt people to put up with the discomforts of *rough*, *noisy* and *uncomfortable* pavements of any kind, *even when maintained free of cost to themselves*.

The cost of the best pavement constructed of wood and asphaltum on the streets of ordinary width in our city, does not exceed, for a frontage of twenty-five feet, more than $18 per annum, or $1 50 per month, or *five cents* per day.

This sum, small as it is, covers first cost, and all needed repairs and renewals, as often as necessary to perpetuate the pavement indefinitely.

Who would not give *five cents* per day to free his store or dwelling from the deafening noise which is inseperable from a stone pavement of any kind, leaving all other considerations entirely out of view?

As an illustration of cost, take for an example Wakelee's drug store, on Montgomery street, which has a frontage of twenty feet. The wooden pavement in front thereof, which was constructed of black-heart redwood in February, 1871, cost only $65. Not a dollar was spent upon it for repairs till July, 1877—six and a half years—and then $35 was found amply sufficient to put it in thorough repair, so that it is safe to say it will now last at least three and a half years longer, making in all ten years for an outlay of $100, or $10 per annum, or eighty-three cents per month, or two and three-quarter cents per day. This insignificant sum per day, is less than the profit to Mr. Wakelee on a single glass of mineral water sold at his soda fountain.

As a further illustration of cost take the entire frontage of the Occidental Hotel property embracing Mr. Wakelee's and nine other stores besides the hotel entrance. The entire frontage of said property from Bush to Sutter streets (275 feet) was paved with black-heart redwood in February, 1871, at a cost of $916, and not a dollar was afterwards expended for repairs till July, 1877, when the sum of $474 was found sufficient to renew the decayed wood and repave the streets as good almost as new, with every assurance of its lasting at least three and a half years longer, making in all ten years, without additional cost.

Now, what showing does this make when reduced down to daily cost, *as everything should be which is in constant use?* The showing then is as follows:

Original cost	$916
Repairs	474
Total cost for ten years	$1,390
Annual cost	$139
Monthly cost	$11,40
Daily	38 cts.

For a noiseless pavement in front of property which pays at a low estimate, $300 per day.

Would not a single additional guest at the hotel much more than make up for this cost, if the fact be admitted for the sake of

the argument, that a more noisy pavement could be had for nothing at all?

Would not an advertisement showing the fact that the streets surrounding any one of our first-class hotels were all paved with noiseless material, bring to it additional patronage, so long as others which, were equal in every other respect, continued to maintain on their streets, noisy stone pavements?

Let this question be answered by persons who reside in the country and who are unaccustomed to the noisy streets of a city.

But when the fact is shown, as it can be beyond the power of contradiction, that stone of any kind for street paving in our city is more costly than wood or asphaltum, what rational argument can then be urged for its further continuance as a desirable material for the purpose.

We have had some very indifferent samples of stone-block pavement laid during the past year at figures ranging somewhat below forty cents per foot, but an examination will reveal the fact that they were terribly slighted, both in the quality of materials used and in the workmanship employed.

No stone block pavement has ever been laid in this city in strict accordance with the specifications under which the contracts were let, for less than forty cents per foot, nor can it be done at a less figure, without a loss to the contracting party. *This is a fact which I challenge any one to disprove.* They may refer to samples which were laid for a less cost, but in every such instance I will undertake to show a failure on the part of the contractor to comply strictly with his contract.

On the other hand the very best materials and workmanship may be used in the construction of a wood and asphaltum pavement at twenty-five cents per foot, leaving the contractor a small margin of profit.

A calculation, then, of first cost and interest, at ten per cent. per annum, will reveal the fact that the depreciation on a pavement which costs twenty-five cents per foot, and lasts seven years, is just *five cents per foot per annum.*

If the same allowance—five cents per foot per annum—be allowed for wear on the stone, a pavement which costs forty cents per foot must last, without repairs, for *sixteen years*, to be as cheap as the wood and asphaltum pavement which lasted only *seven years.*

These are truths which any ready-reckoner will soon demonstrate.

Now, who believes that the stone block pavements of our city will last sixteen years without extensive and costly repairs?

Have not some of them on Kearny street absolutely given out under four years' travel, notwithstanding the predictions of the editor of the *Evening Bulletin* and others, at the time they were laid, that they would certainly last twenty years? (See editorial of February 11th, 1874.)

Is it not a fact that the North Beach and Mission Railroad Company are now renewing the stone blocks between their rails on Kearny street, where the discarded stones have given out entirely under three and a half years' travel?

Then, on the other hand, I point with satisfaction to the sample of black-heart redwood pavement on Kearny street, in front of the City Hall, which, after seven years' wear, was found to be in such a fine state of preservation that five per cent. only of new material was found necessary to renew all the blocks which showed signs of wear or decay, and the small sum of five cents per square foot was sufficient to put the entire pavement in good repair.

In conclusion, I now challenge any one to point to a single sample of redwood block pavement which has given out or is likely to to give out in seven years.

H. F. Williams.

August, 1877.

[Card No. 5.]

TO THE PUBLIC.

In my endeavors to call attention to the benefits arising from the use of smooth and noiseless street pavements, I have referred only to their direct cost as contrasted with stone, and have studiously avoided alluding to the indirect advantages, such as the saving in the wear and tear of vehicles and destruction to horses. But, in this card, I will deal somewhat in facts and figures to show up that branch of the subject, believing, as I do, that IT, when properly understood, will soon work such a complete revolution in the public mind as to ensure, at an early day, the passage of an ordinance by the Board of Supervisors to prevent the further use of stone, of any kind, for street pavements, even though it be conceded as a fact that their direct cost is less. Let information be sought from every quarter of the goble, upon this important subject, and it will be found, without exception, tending to the same unerring conclusion.

Dr. Ure, who is now regarded as good authority all over the civilized world, in his Mechanical Dictionary, says: "The saving in the life of horses used upon wood and stone pavements, is in favor of the wood as 5 is to 2."

He says: "The constant driving of draught horses upon stone pavements produce diseases and infirmities, both in the joints and hoofs, which uses them up very rapidly."

"He says: "The saving in the wear and setting of shoes is at least one-half; or, in other words, that it costs twice as much to keep horses shod on stone pavement as it does on wood."

The "Scientific American" says: "Wooden pavements would save over fifty per cent. of the wear and tear of horses and vehicles, as compared with stone pavements."

A special committee of the Common Council of the city of Philadelphia, in reporting upon the paved streets of that city, expressed themselves as follows, touching cobble-stone pavements, to-wit:

"It really seems a slur upon our progressiveness, that this plan of paving, so long ago adopted, should have been so long tolerated and be so generally in use at the present time. Its comparative small cost for the FIRST construction is, and has been, its only recommendation."

A special committee of the Common Council of the City of Hartford, reported as follows, upon cobble pavements:

"The objection to the cobble arises from the great discomfort it occasions riding over it, the excessive wear and tear of vehicles, the injury to horses in bruising the frog of the foot and pounding the hoof and leg; also, the extra force and muscle requisite to transmit loads over it, the incessant noise which travel upon it causes, the difficulty and expense of keeping it in clean condition, and its early tendency to become uneven and rutted."

In the same report, the following occurs relative to wooden-block pavements.

"It is also found that a horse can draw nearly twice the load over a wooden than he can over a stone pavement."

The President of the Union Carriage Company, in this city, says his Company will cheerfully submit to an increase of $1000 per month; or $12,000 per annum, on their present license tax, if the stone pavements of the city can be removed to give place to smooth pavements constructed of wood and asphaltum; and this offer is based upon a clear conviction that this Company would be the gainer thereby, in the saving to their carriages and horses from the wear and destruction occasioned by stone pavements.

Mr. R. B. Woodward, who is well known in this community as a most careful man, and one who always counts the cost of everything with an accuracy unsurpassed, says he is now fully convinced it would be economy on the part of the Mission Street Railroad Company (of which he is a large owner), to substitute wood and asphaltum for the stone blocks between their rails, even supposing it necessary to renew the same every three years. His estimate of the saving to their horses being largely in excess of the cost for maintaining a smooth pavement.

Mr. M. Skelley, Superintendent of the North Beach and Mission Railroad Company, has long been of the same opinion, and the only

reason why he has not carried his theories into practice was that wherever he thus improved his tracks in advance of the balance of the street, they invariably attracted all the travel, and the progress of his cars was thereby obstructed.

He has recently said to me, wherever the property owners, or the city, will lay down your pavement upon any portion of the route upon which my cars travel, I will adopt it between my rails, PURELY UPON THE SCORE OF ECONOMY, leaving the question of comfort entirely out of view.

A gentleman, who is himself an owner of a large number of horses, which are employed in the industries of our city, has made a careful estimate of the accruing damages by reason of our rough stone pavements, and says it would be true economy for himself and all other persons similarly situated, to pay a tax of $10 per head per annum on all work horses, to create a fund to be expended by the city authorities in constructing and maintaining smooth and good streets.

Such a tax would amount, in the aggregate, to about $300,000 per annum—a sum sufficient to keep in repair (if laid of wood and asphaltum) a much larger area of street surface than that now covered by all the accepted stone streets in our city, and, at the same time, create a sinking fund sufficient to refund in four years the cost of the change from stone to wood and asphaltum. In other words, the sum of $800,000 would suffice to remove all the stone pavements and substitute wood and asphaltum in their stead, and $100,000 per annum would be amply sufficient to repair and renew the same perpetually, thereby leaving of the proposed license tax, the sum of $200,000, per annum, for a sinking fund to wipe out in four years the original cost for the change from stone to wood and asphaltum.

By the adoption of such a course, those who use the street most, would, in this way, contribute to their maintenance, and the city would become simply the disbursing agent without having to draw at all from her general street fund for the maintenance of her accepted streets.

Would this not be a very gratifying change? Would it not effectually quiet the incessant fault-findings of those who have for years past persistently misrepresented the actual costs attending this branch of Municipal expenditures?

If a voluntary tax, or one which will not be objected to on the part of those who have to pay it, can be levied to cover the expense for maintaining accepted streets, who will be found objecting to the adoption of the most comfortable pavements to both man and beast?

A correct understanding of the facts relative to this important subject is all that is necessary to work out a complete reform and give the BEST instead of the POOREST streets in the world, and AT

THE VERY MINIMUM OF COST; for San Francisco is more favored than any other city on earth with an abundant and cheap supply of the very best wood and asphaltum ever used for the purpose of street paving. This is a fact which I challenge any one to disprove.

H. F. WILLIAMS.

August 21, 1877.

[Card No. 6.]

TO THE PUBLIC.

In my several cards on the subject of street paving, I have sought first to expose what I considered an unexplained, if not an *insane* desire on the part of certain newspaper editors in this city to utterly pervert the truth touching the question of street pavements.

In my second, I fixed the identity of the "Patent-Fiend"—a personage first brought to the light of day by the *Evening Bulletin* newspaper of this city.

In my third, I gave proofs sufficient to convince any one of the legitimacy of the "Patent-Fiend." From his own utterances I showed him a base malefactor who took such fiendish delight in perverting the truth regarding all patents as to fix beyond controversy his *right* to the cognomen of "*Patent-Fiend*."

In my fourth, I proved the expense attending a smooth and noiseless pavement constructed of wood and asphaltum, to be much less than the cost for any style of stone pavement. *All of which* was in direct contradiction of the oft-repeated false assertions of the "Patent-Fiend" through the editorial columns of the *Evening Bulletin*.

In my fifth, I proved to the satisfaction of all honest and candid people, that the indirect damage which has arisen from the use of stone pavements has been largely in excess of the cost for constructing and maintaining wood and asphaltum, the most comfortable pavements known, both to man and beast.

That brings me to my sixth card, and though I had at first thought differently, I now propose to refute some of the slanders attempted to be heaped upon me individually by the "Patent-Fiend."

In his editorial of May 26, 1877, he makes an accusation which I can and will refute as thoroughly and completely as I have his other false and fiendish utterances.

He says: "Of the Williams' patent we know little or nothing. But we are cognizant that in the past the City Treasury has been bled freely by patent pavement schemes engineered by the same Mr. Williams."

As proof that this is another of the recklessly false and malicious accusations of the "Patent-Fiend," it is only necessary to refer to the books and accounts of the Auditor and Treasurer of the city.

Although the readers of the *Bulletin* have been made to believe the City Treasurer has been bled to the tune of several million dollars to pay for constructing patent wooden pavements, the official records do not show any such expenditures.

The total cost for all the wooden block pavements ever laid in San Francisco by the Nicholson, Stow and City Paving companies combined, amounted to only $516,000, which was at the cost of the property owners, (so far as paid for,) but payment was not made with funds drawn from the City Treasury.

It is also a fact, which the records of the several District Courts will show, that about one-third of the above named sum, ($516,000,) for which assessments were levied, *was never collected*.

The collection was resisted through legal technicalities—the Courts sustained the objections, and as a consequence the parties who owned stock in the paving companies (Nicholson and Stow) lost the money paid out for the work.

These are simple, unvarnished truths, which are fully corroborated by the court records, as any one may find, who takes sufficient interest in the subject to make an examination.

When the "Patent-Fiend" charged me with being the engineer of the patent schemes by which the City Treasury had been freely bled, he should also have associated with me, those who are deservedly classed among the most reputable of our citizens, viz: ex-Mayor Alvord, Charles E. McLane, Esq. and N. G. Kittle, Esq., for they constitute a majority of the Board of Directors of the Company under which said work was done.

Now, what will these gentlemen say in answer to the soft impeachment? Let inquiry be made of either one or all of them, and the fact will appear from their statements—under oath, if necessary—that they and their associates were themselves subjected to the bleeding process to the tune of nearly *one hundred thousand dollars*. That amount was drawn from their pockets, and went directly to the benefit of the *honest* taxpayers and property-holders, who, after having petitioned for the work, refused to pay the cost, simply because they found they could evade payment by resorting to legal quibbles.

I repeat, it was in this way the pockets of shareholders in the paving companies were *freely bled*, instead of the City Treasury, to pay for constructing wooden block pavements. Beyond a very

small sum paid for work done in front of city property, not a dollar has ever been paid for constructing patent wood pavements.

The total amount thus far paid from the City Treasury, for repairs to wooden block pavements, does not aggregate more than sixty thousand dollars, all told; while the official records show double that sum is expended *annually* for repairs on accepted stone pavements.

These are not mere assertions, but *facts*, sustained by the Auditor's books and Treasurer's accounts, the false and malicious accusations of the Patent-Fiend to the contrary, notwithstanding.

What then, I inquire, becomes of this last basely false accusation from the assassin of personal character?

Does it not stamp him as being an utterly depraved and vicious falsifier, and one whom the general public may regard as the genuine type of a "Patent-Fiend."

H. F. Williams.

August 31st, 1877

REPORT

ON A

SYSTEM OF SEWERAGE

FOR THE

CITY OF SAN FRANCISCO.

BY

WILLIAM P. HUMPHREYS,

City and County Surveyor.

SAN FRANCISCO:
SPAULDING & BARTO, PRINTERS, "Scientific Press" Job Printing Office,
414 Clay Street, below Sansome.
1876.

PLAN FOR A SYSTEM OF SEWERAGE.

OFFICE OF THE CITY AND COUNTY SURVEYOR,
San Francisco, May 22d, 1876.

To the Honorable Board of Supervisors,
City and County of San Francisco:

GENTLEMEN—In accordance with a contract made with your Honorable Body, in November last, by which I was to prepare a system of sewerage for that portion of this City and County in which the grades of the streets have been already established, I have the honor to transmit herewith a general sewerage map of the city, and detailed drawings of sewer connections, manholes, catch basins, and traps; also, detailed plans of house connections with sewers; and I now have the honor to submit the following:

We have no official record of the construction of any public sewer previous to the year 1858. It was in that year their construction was officially commenced, and since that time to July 1st, 1875, there have been constructed $74\frac{37}{100}$ miles of public sewers, at the following cost:

Brick Sewers	$2,252,253 00
Redwood Sewers	378,395 00
Cement Pipe Sewers	54,043 00
Making a total cost of Sewers to July 1st, 1875	$2,684,691 00

A large proportion of which was in currency.

The greater portion of these sewers are of brick, but their cost has been excessive, because, among other reasons, they have been unnecessarily large. The general sizes of the sewers are three (3) feet by five (5) feet. These brick sewers are egg-shaped, as they should be, with the smaller end down. Most of the streets in the older portion of the city have brick sewers, which extend up the hillsides to irregular distances. When these sewers approach the lower portions of the city, when the foundation is not sufficiently solid to sustain a brick sewer without a resort to piling, the sewers are of wood, and are generally level, or nearly level. Being down, or nearly down, to low water, the tide rises and falls in them, so checking their outflow that most of them are to-day nothing more than elongated cess-pools, badly choked with offensive sewage matter. This evil must go on increasing from year to year, until some change is effected and some remedy applied.

In fact, the existing sewers of the city have been built without regard to a system of any kind which looks to the general drainage of the city. Each sewer appears to have been built independently of all others, and without regard to the duty it has to perform. Some of the alleys and short streets in the city, for instance, where there are only a few houses, have sewers of the same size as those in the largest streets, whereas a foot earthenware pipe, at one-fifth the cost of the great brick sewer, would have afforded much more efficient drainage for all such alleys and short streets.

I need scarcely add that the want of system in the existing sewers greatly complicates the problem of designing a proper plan of sewerage for the city,

because, in order to curtail expenses, we are constrained to utilize, as far as possible, the sewers already built, and to reconcile them with those details which more correct principles demand.

THE PROPOSED SYSTEM OF SEWERAGE.

Before undertaking to devise the plan of sewerage for San Francisco, which is now presented for your consideration, in order to fully inform myself on the subject, I carefully studied the systems of sewerage in London and Paris, as well as those of all the principal Eastern cities of the United States.

The water carriage system is adopted in all these cities to the exclusion of "earth closets" or the "pneumatic system." As this is the system now in use in San Francisco, I recommend that it be continued.

In preparing the plan of sewerage now proposed, I have kept constantly in view the following considerations:

1st. The ready conveyance of rain waters and house sewerage to the Bay of San Francisco, with the least possible damage to public or private interests.

2d. The efficient drainage of the sub-soil and foundations of houses.

3d. That all new sewers be so proportioned in size as to admit of further extension to meet all possible future demands, without, at any future time, rendering useless any portion of them which may have been constructed.

4th. The least possible expenditure compatible with a complete and efficient system of sewerage.

5th. The use, therefore, as far as practicable, of all existing sewers.

The topography of this city is divided by Nature into several drainage districts. As an original question, the sewerage districts would correspond with these, but the existence of the present sewers, which it is desirable to utilize, makes some variations necessary.

For convenience of easy references, the sewer districts are designated on the large sewer map by numbers 1, 2, 3, etc., to 30, making altogether that number of districts, one of which includes a portion of the County of San Mateo.

On this map the sizes and the direction of flow of all existing sewers, as well as of those to be built hereafter throughout the city, are shown, so that every property-owner may see at a glance in what sewers he is most interested for the proper drainage of his own premises.

The true purpose of the sewer is the instant removal from the vicinity of dwellings of all refuse matter liable to decomposition and capable of being conveyed by water.

The principle now insisted on, is that each day's sewerage of each street, and of each dwelling, should be removed from the city on the day of its production; that it should pass away before decomposition begins, and that the sewage matter of any one day should not be found within the limits of the city on the next day.

It has already been said that the present brick sewers in the city are, with few exceptions, altogether too large. They are not as efficient as smaller sewers would be, because smaller sewers, with the same grade, would be self-

cleansing, whereas the present large sewers, in many places, have to be entered and cleansed—a disgusting and costly operation which ought never to become necessary in a well arranged system of sewers.

In the plan now proposed I have endeavored to correct these evils. The sizes of the sewers are proportioned to the duty they have to perform.

CONDITIONS GOVERNING THIS QUESTION.

The conditions governing the size of a sewer at any point are these:

1st. The amount of sewage proper passing that point.

2d. The amount of rainfall passing through the sewer at that point in a given time.

3d. The inclination of the sewer.

This brings the question, as to what should be the size of any sewer at any given point away from the regions of speculation, and confines it within the domain of scientific experiment.

The extremes of rainfall within a given time mainly govern the sizes of sewers; the household sewerage is a very small item in comparison.

In the Eastern cities of the United States, where modern sewers have been introduced, it is supposed that the heaviest rainfall is one inch per hour, and it is estimated that not more than one-half of this rainfall reaches the sewers within that hour.

Fortunately for the sizes of the sewers required in this city, we have not to provide for such an excessive rainfall. The heaviest rain of which I find any reliable note is that in the records of Mr. Thomas Tennent. This occurred on the 19th day of December, 1866, when the fall of rain in twenty-four hours was 4.28 inches, or at the rate (nearly) of $\frac{1}{100}$ of one inch per hour for twenty-four hours. It will be safe, therefore, to suppose that the heaviest rainfall in this city will not exceed $\frac{25}{100}$, or $\frac{1}{4}$ of an inch per hour. This is about 39 per cent. more than the heaviest recorded rainfall.

On account of the steep hillsides in many portions of this city, where the water falling on the streets and on the roofs of houses will reach the sewers rapidly, I have increased the proportion of rainfall which will reach the sewers within a given time to sixty (60) per cent. of the total, instead of fifty (50) per cent. in all Eastern cities. This gives $\frac{15}{100}$ of an inch of rainfall within an hour to be provided for by the sewers. A rainfall of one inch deep in one hour, over one acre, gives 3,630 cubic feet of water. Fifteen per cent. of this is 544.5 cubic feet.

The daily flow of sewage for a population of eighty (80) persons per acre, at eight (8) cubic feet each (a very large allowance), will be 640 cubic feet. But one-half of this, or 320 cubic feet, reaches the sewers in eight hours, or at the rate of 40 cubic feet per hour, making the total drainage 584.5 cubic feet per hour for each acre.

As the maximum sewerage per acre per hour (40 cubic feet) is a little over one (1) per cent. of an inch spread out over one acre, and as large buildings, like hotels and manufacturing establishments, may have a population of over eighty persons per acre, I have increased the percentage of an inch per acre,

to seventeen per cent., making 617.10 cubic feet per acre per hour, or 10.285 cubic feet per minute. It is for this amount of discharge per acre per minute that the capacity of the sewers now proposed has been calculated.

SIZES OF THE PROPOSED SEWERS.

In calculating the sizes of the proposed sewers, I have consulted the formulas of Weisbach, D'Aubaison, and Neville, and the sizes have been calculated by the formulas of each of these authors; the final calculations, however, being made by a modification of Weisbach's formula.

RESULTS.

It is found by careful calculations, that with the rainfall and house sewerage given above, that is, $\frac{1}{100}$ of an inch per hour—

A 12-inch	pipe	sewer	with	a	grade	of	1 in	300	will drain 13 acres.
"	"	"	"		1	"	200	"	17 "
"	"	"	"		1	"	150	"	20 "
"	"	"	"		1	"	100	"	25 "
"	"	"	"		1	"	50	"	36 "
"	"	"	"		1	"	25	"	53 "
"	"	"	"		1	"	20	"	59 "

This shows that large areas of the city may be drained by a sewer only 12 inches in diameter. When we come to larger sewers their capacities for drainage increase more rapidly than their sectional areas.

It is upon the proper determination of the sizes of the various sewers that much of the economy of the sewerage sytem of this city must depend. Experience in other cities has fully demonstrated that glazed earthenware pipes, or pipes of Portland cement, of from one foot to one foot six inches in diameter, are well adapted for small sewers, and their use is recommended in the plan now proposed. Even two feet pipe sewers are extensively used in London and in some of the Eastern cities of the United States.

The best earthenware pipe sewers have heretofore been made in Scotland, but if a constant demand for such sewer pipe is created in this and neighboring cities, a good quality of such pipes will doubtless soon be manufactured on this coast.

I know of no city more favorably situated by nature to their general introduction than San Francisco. The steep grades of many of the streets will enable these pipes to drain larger areas than in most other cities.

As we approach the summits of the hills one foot pipes will be amply sufficient. It is only necessary when we must collect the sewerage from very large areas into one sewer that brick sewers will become necessary.

Heretofore, the brick sewers of this city have been built with the common bricks of the country, and it may as well be known that in many cases neither the bricks nor the workmanship have been of the best character. Sewers require the best quality of sand and hard and thoroughly burnt bricks. No sal-

mon bricks should ever be used in a sewer. The inverts of all sewers are particularly liable to wear from the erosion of the water running over them, and in many parts of this city the wear is greatly increased by the grinding action of the sand carried into the sewers in heavy rains.

The bricks in the bottoms of sewers should be smooth, so as to present the least possible frictional resistance to the flow of water. In small brick sewers special bricks or invert blocks should be used in their bottoms, or else bricks with radiating joints should be made to conform to the curve of the bottom of the sewer. Ordinary bricks are totally unfit for the construction of small brick sewers, on account of the wide gaping joints they leave on the back. Unless the mortar, in such a case, is of very superior quality, it will disappear in time, when the water in the sewer will escape through the joints, and the sewer will be liable to become undermined, and thereby destroyed, or it will become filled up with solid matter, which will choke it for want of the water necessary for the transportation of the sewage. The very best quality of cement is required in the construction of sewers. Every barrel should be tested, and the mortar should not be weakened by a too free use of sand.

Both cement and earthenware pipes are now coming into use in this city. If cement pipes continue to be used, only the very best quality of Portland cement should be used in their manufacture, and they should be made some four months before being used. Earthenware pipes should be salt glazed, thoroughly burned and tested as to strength, before being laid in place.

OUTFALL OF SEWERS.

Very few, if any, of the sewers of this city are provided with proper outfalls; whereas all writers on the subject tell us that this is the very first thing that ought to be attended to in designing a system of sewers.

The Bay of San Francisco being of great size, with strong tidal currents, affords great facilities for getting rid of the sewage matter of the city; but to make it available, the sewers must be carried out to points where there are strong currents. If they stop short, the lower parts of the city must always remain in an offensive and unhealthy condition.

Along the busy water-front of the city some of the sewers do not extend out into the bay, but stop short, terminating inside of the rubble stone bulkhead, where the offensive solid matter is deposited, and the liquid matter allowed to escape to the sea as best it can, rendering the slips between the wharves at times offensive to the last degree of endurance. All of these sewers should be carried out to the ends of the wharves, discharging their contents through a bent hood, leading from the outer end of the sewer down below the level of low water. Discharging at such points, the tide will speedily remove the sewage matter away from the city, and there will be no offensive smell about the wharves.

In the construction of new wharves along the water-front, preparations should be made for continuing the sewers under them out to their ends, and also for the protection of the outer ends of the sewers at these points.

It should not be forgotten that there is very little, if any, current in the slips between the wharves, particularly when they are crowded with vessels; and, if the sewers are discharged into these slips, the sewage matter and sand brought down by the sewers is deposited there. The slips soon become very offensive to the sense of smell, and in addition are rapidly filled up, thereby greatly increasing the amount of dredging which is necessary in order to maintain the proper depth of water for berthing vessels.

So serious is this matter of filling up the slips between the wharves, by allowing the sewers to discharge into them, that I seriously contemplated at one time, in the early stages of my investigation into the subject of sewerage for this city, to recommend bringing the entire sewerage of Hayes Valley down Market street to Dupont, then by tunneling Dupont street, from Geary street to the intersection of Dupont street and Montgomery avenue, and continuing the tunnel along the avenue to Greenwich street; a large sewer might be extended through this tunnel along Montgomery avenue to Point San Jose, draining one-half of the city, and discharging the drainage well out towards the sea, thereby greatly relieving the drainage of Mission Bay, and largely decreasing the deposits from the sewers along the city front.

Considerations of cost only induced me to abandon the idea of embodying this project into the plan now proposed.

The sewers now discharging into Mission Bay are, if possible, in even a worse condition; the whole region on the borders of this bay, and along Mission Creek is nearly uninhabitable at low water. Luckily a step has been taken in the right direction to relieve this great nuisance by the construction of a large sewer from Eighteenth street down to Ninth street, capable of carrying all the waters of Mission Creek and all its drainage. When this creek and the bordering low lands above Ninth street are properly filled up and graded, there will be a great improvement in the drainage of this portion of the city; but the outfall of this large sewer will be very imperfect. The nuisance will be concentrated at and below Ninth street, rendering that part of the city offensive at low water.

The proper remedy is to carry this large sewer through Townsend street to the bay. This should be done as soon as funds can be provided for the purpose.

All the outlet sewers in the northern portions of the city should be carried out into the bay, and either empty their contents through closed hoods leading down below low water, or have their outlets closed by a valve. Unless this is done the strong northwest winds of summer will be driven up these sewers in uncontrolled volumes, deranging all the means provided for ventilation, and rendering even the streets offensive and the houses dangerous.

DEPTH OF SEWERS BELOW PAVEMENTS.

In planning the system of sewers here recommended I have paid due attention to subsoil drainage, for it is well known that where the subsoil water has been removed from the foundations of buildings the result has always been to

improve the health of the inhabitants by lessening the amount of consumption and all similar affections. I have, therefore, planned the depth of the main sewers and sub-mains as far below the grade of the street as possible, care having been taken at the same time to guard against an unreasonable outlay to secure the end in view.

In studying what has been done in other cities in this respect, I find that the Commissioners of Sewers in the City of London have decided that the bottom of a common sewer should not in any part be less than twelve (12) feet beneath the surface of the street. The least general depth in Leicester, England, is twelve feet below the surface.

In Boston, Mass., sewers are laid in the suburbs at nine (9) feet below the grade of the street, but in the business part of the city a depth of twelve feet is considered necessary.

In Jersey City, N. J., the depth is twelve feet.

In Newark, N. J., the sewers are generally thirteen feet below the street, but sometimes that depth cannot be obtained.

In Colonel Adams' report to the Commissioners of Drainage of the City of Brooklyn, in 1857, it is stated that the grade of the sewers is to be thirteen (13) feet below the level of the curbstone, and that the same rule is observed in the City of New York. The invert of the pipe sewer is generally one foot less in depth below the grade of the street than that of the brick sewer.

In Cincinnati, brick or main sewers are at a depth of thirteen feet below the streets.

In St. Louis, the least depth is ten feet; but they have had to go as deep as sixty feet to obtain an outfall for one district. In the latter case there is a tunnel.

In Philadelphia, the practice is to make the house-connections with sewers eight and one-half feet below the level of the curbstone, and make the bottom of the connection at spring line of sewer.

Mr. Chesbrough, who is not inferior to any engineer as an authority on the subject, gives it as his opinion that the bottom of a pipe sewer should be ten feet below the grade of the street, but the bottom of a brick sewer should be two feet lower.

A depth of thirteen feet, when practicable, is recommended for this city in the business portion of it where deep cellars are required. In the interior or western portion of the city a depth of ten feet is considered ample.

THE ORDER IN WHICH THE SEWERS SHOULD BE BUILT.

Probably the most urgent matter connected with the proper drainage of the city is the completion of the sewerage of Mission Creek, which has been already commenced by the construction of a very large sewer in the border of the creek from Eighteenth street to Ninth street.

The whole creek should now be filled up from its southerly extremity as far north as Ninth street, and all streets crossing or intersecting the creek should be brought up to the proper grades, so as to allow their sewers to discharge

into the large intercepting sewer with the necessary fall to enable them to be self-cleansing; and the attention of the Board is earnestly called to the immediate necessity of extending the Fourteenth street sewer in a direct line, and connecting it with Channel street sewer, in order to avoid what must otherwise necessarily be requisite, a greater modication of grade in a portion of this district than has been recommended. As the Channel street sewer will carry all the water that flows through the creek, as well as the house sewerage of one of the largest sewer districts in the city, when it is completed, and the lateral sewers connected with it, a very important step will have been taken towards the proper drainage of the city.

In this connection it may be remarked that if this city ever succeeds in obtaining a fixed and permanent sea-wall or bulkhead, an intercepting sewer can be built behind it, after the ground has become sufficiently settled, and the entire drainage of the water front of the city carried to the strong tidal currents off Point San Jose (Black Point), thereby relieving the wharves of all offensive smells, and the slips of nearly all deposits. Such a sewer would have to be of large size. It may be built level, or nearly level. It would require to be flushed at every low tide, the water of every high tide being retained in a proper reservoir for that purpose.

It would be possible, of course, to build such a sewer at the present day: but, owing to the precarious nature of the foundation, its cost would now be so excessive that I have not deemed it proper to recommend its construction until the entire water front is fixed in position and made permanent.

In the construction of new sewers they should be commenced at their outfalls or lower ends and built upwards. The main or arterial sewers should be first constructed. The small pipe sewers can then be built and connected with the main sewers, as the wants of population require.

It should not be forgotten that all sewers projected and shown on the Sewer Map, amounting in the aggregate to about 296.5 miles, 275.5 miles of pipe and 20 8 miles of brick, need not be built in a year, or perhaps ten years. The object has been to present a complete system for the thorough drainage of the city, to be carried out from time to time, as the course of settlement and the wants of population require.

By using smaller sewers than those heretofore used (pipe sewers generally), large enough for all purposes, but no larger than are necessary, the cost per running foot of all the proposed sewers will not be more than one-half, possibly only about one-third of the brick sewers heretofore constructed.

If the city continues the construction of its sewers during the next fifteen years according to the plan now recommended, increasing the amount of funds for that purpose pro rata with the increase of population, and the work be managed economically, it will be found at the end of that time to be one of the best drained cities in the United States.

PUMPING WORKS.

That portion of the city east of Montgomery street, between Jackson and Pine streets, is very badly drained, yet it is the very heart of the business centre of the city.

It is a great misfortune that the grade of Montgomery street, between Jackson and Pine streets, and all that portion of the city eastward of it, had not been fixed at a higher level. But unfortunately the grade of Montgomery street, between Jackson and Clay streets, is only six feet above the city base, which base is only 6.7 feet above high water.

With such a small fall from there to the city front, it is impossible to obtain proper drainage, and the consequence is that the cellars and basements which should be very valuable portions of warehouses, are but little used.

Had the level of Montgomery street been fixed at twenty feet above the city grade, which it is at Bush street, millions would have been saved to the city; and the increased rentals of dry cellars and basements in its commercial centre would have more than paid for the first cost of the higher grade.

There are only two ways of remedying the defective drainage of this portion of the city. One is, by raising the grade of the streets; the other is, by pumping up the sewerage from a lower level than that of the present sewers.

But the value of the buildings on this portion of the city, east of Montgomery street and lying between Jackson and Pine streets, is already so great as probably to preclude the idea of a change of grade. If this point be conceded, then we are forced to resort to pumping works for this district, in order to obtain proper drainage, with dry cellars and basements.

The outline of a system of sewers to drain this portion of the city is shown on a special map herewith. I append a brief description. It is proposed to build a two feet brick sewer along Front street, starting at Pine and terminating in a large masonry tank near the water front, which tank, for illustration, I have located on said map.

This sewer would run beneath all the present sewers, water and gas pipes; its bottom on the inside at Pine street would be at a level of about eleven (11) feet below the city grade, and falling about one foot to each block, it would enter the tank at about twenty or twenty-two feet below the city grade, according to the position of the tank.

One foot pipe sewers, laid at the proper grade below the present sewers, would then convey all house-sewerage within this district to the Front street sewer, these small sewers leading from Montgomery street to Front street, and also from the city front to that street.

The present sewers in this district are to remain undisturbed in order to carry the surface water of rains and the sewage west of Montgomery street, as far as these sewers extend, into the Bay. But all house sewers and drains within the pumping district are to be disconnected from them, and be discharged into the lower or pumping system. In this way, deep and dry cellars may be obtained throughout this important part of the city.

It is supposed that this new system of sewers will be self-cleansing, but if any difficulty in this respect should ever occur, it will be a simple matter to flush them with salt water, without pumping the water, for it will be seen that all these sewers are down to or below the level of low tide. An eight-

inch pipe may therefore be laid at the level of half tide or lower, beginning, say, at the foot of Davis street, extending southward along the water front to the foot of Market street, thence up Market to Pine street, thence up Pine to Montgomery street, thence along Montgomery to Jackson street, the said pipe to have valves, worked from the street level, and so arranged as to discharge the full capacity of the pipe into the head or highest point of every sewer. By this arrangement, this entire system of sewers may be completely flushed every day, or as often as may be found necessary.

The tank into which these sewers discharge must then be pumped out every day, its contents being discharged through an iron pipe into the strong tidal currents at the foot of Front street, or any other convenient place.

This lower system of sewers will be further utilized to drain the ground and the foundations of the houses in this district, by laying blind gravel drains over them, with openings for the subsoil water to enter them at convenient places. As the tide rises and falls in the lower ends of the present sewers, and as they are to convey the rain water of storms, it is necessary, in order to secure dry cellars in this pumping district, that these old sewers be made water tight, and as these sewers are all unnecessarily large, this can be effected by turning a four-inch brick arch, laid in cement, inside of them. The cost of this lining is included in the estimate which follows.

The tank for the reception of the sewage from this district would require to be one hundred feet long, thirty-five feet wide, and eight feet deep below the outlet of the Front street sewer. This would give ample space to hold the sewage of the district from 5 P. M. until 7 A. M. The pump would then be started and the tank emptied by 5 P. M., giving ten hours pumping per day.

For this purpose there should be two independent pumps, with engines and boilers complete, of about twelve horse-power each, so that if, at any time, one pump should get out of order, the other one would be available.

It should not be forgotten that the drainage of this district is entirely independent of the drainage of all other parts of the city. It may or may not be carried out, according to the wish of the property-owners in the district.

Its entire cost, including sewers, man-holes, flushing arrangements, subsoil drainage, lining the present sewers, tank, pumps, engines, boilers, etc., would be about two hundred thousand dollars ($200,000), and the daily cost of pumping and flushing sewers would be about twenty dollars ($20) per day.

Now the interest in the first cost of these works, say:

$200,000 at 10 per cent. per annum	$20,000
Cost of pumping at $20 per day	7,300
Cost per annum	$27,300

or nearly ($75) seventy-five dollars per day.

There are about forty blocks that would be benefited by this system of pumping, and if we suppose that there are or will be forty stores or houses in

each block, we would have sixteen hundred houses upon which the cost would be assessed, or a fraction less than five cents per store or house per day. Whenever the property-owners of this district are willing to pay this amount per day, or eighteen dollars and twenty-five cents ($18.25) per store or house per year, for the privilege of having dry cellars and basements, they ought to be allowed to have them by the construction of the works herein sketched.

The cost of the lot upon which to erect the pumping works is not included in the foregoing estimate.

CHANGES OF GRADE RECOMMENDED.

The established grades in some portions of the city are so clearly defective that I have assumed they must be changed in order to conform to a proper system of drainage.

In a few cases, where the necessity of such changes are perfectly manifest, they are shown on the large Sewer Map; the changes in all such cases being reduced to an absolute minimum compatible with the drainage question before me.

Among the first of these changes which arose in the investigation of this question was the necessity of raising the grade at the intersection of Market and Church streets about 10 feet, or from 73 feet above the city base to 83 feet above that level; and this change is noted on the Sewer Map.

But the greatest change from established grades, which appears to be absolutely necessary, is the raising of the grades within certain limits of Fourth, Fifth, Sixth and Seventh streets. The district within which the changes are to be made are more or less occupied by buildings, and the changes will therefore be more expensive to the property-owners, involving as it must the raising of these houses. To no portion of the question of drainage for the city have I given more attention than the one now under consideration, and the result is that the grades of these streets, within certain limits, must be raised, or else we must resort to pumping the sewage matter.

Channel street sewer is already built from Eighteenth street down as far as Ninth street. It appears to be absolutely necessary that this main sewer should be continued to the bay through Townsend street, for it will never do to concentrate the sewerage of all the upper portion of Mission Bay at Ninth street, where it will be bare at low tide. This would render many blocks in that vicinity practically uninhabitable.

The necessity of extending this main sewer being granted, the question arises, how are we to drain the low portions of Fourth, Fifth, Sixth and Seventh streets, whose sewers now enter into Mission Bay below the level of the main Channel street sewer when extended, and which sewer is as low as it possibly can be placed for efficient drainage?

There are but two answers to this question: one is by pumping the sewage of these streets up into the Channel street sewer; the other is by raising the grades of these streets so that their sewers may have the necessary elevation to discharge into Channel street sewer at the proper level.

I know well that this proposition may meet with opposition from some of the property owners, on account of the expense which it must involve; but let any body of intelligent and disinterested men look into the present defective drainage of these streets, examine the sewers in their lower portions, see that they are full or nearly full of sewage matter which can never be discharged, and reflect that by raising the grades so as to secure proper drainage, the value of property will be greatly enhanced, and I am convinced that it will be their unanimous opinion that the grades ought to be changed.

Knowing the expense involved I have endeavored to make the change a minimum. As this change will interest many persons, I append here the changes in the grades of these streets which are recommended and which are represented on the Sewer Map.

1st. Raise the grade of Fourth street from Folsom street to Brannan street two feet throughout.

2d. Raise the grade of Fifth street from Folsom to Townsend street six feet at Folsom street, eight feet at Harrison street, six feet at Bryant street, and four feet at Brannan street.

3d. Raise the grade of Sixth street from Howard street to Townsend street 3.5 feet at Howard street, 7.5 feet at Folsom street, 7.5 feet at Harrison street, 7.5 feet at Bryant street, and 5.5 feet at Brannan street.

4th. Raise the grade of Seventh street from Folsom street to Townsend street seven feet at Folsom street, seven feet at Harrison street, nothing at Bryant street, but raising five feet at Brannan street. Then the sewers from these four streets can discharge into the continuation of the Mission Creek sewer when it is extended to the bay through Townsend street.

There are other changes of grade which appear to be absolutely necessary, particularly in Townsend and Centre streets; also the intervening portion of Mission Bay. These proposed changes are marked on the Sewer Map. These proposed changes can be more economically effected now than at any future time. There are other and important changes of grades that ought to be made, particularly in the Potrero and South San Francisco.

An examination of the Sewer Map will show that I have planned the sewerage of all these portions of the city where the grades have been established. This is done in accordance with the terms of my contract: yet I desire to say that my studies of the subject of grades, in connection with that of drainage, have led me to the conclusion that a change of grades in these new portions of the city is imperatively demanded, and the sooner such changes are made the better. I beg leave respectfully to urge this matter on the attention of the Board of Supervisors.

The necessity of establishing suitable grades in the new parts of the city and of altering the present established grades where necessary in order to make them conform to a proper system of grades and of drainage, must be manifest to every man who looks a little into the future.

As an illustration, let us look a moment at the Potrero and South San Francisco.

The map of the city shows large areas laid out in Mission Bay, and in the shallow waters of San Francisco Bay at the mouth of Islais Creek; also in the bay still farther south.

If the precedents heretofore established in filling up along the water front of the city are to be continued in the future, the streets through these low lands will only be brought up to the city base, 6.7 feet above high water. If this be done, a proper system of drainage and sewerage will become simply impossible without a resort to pumping.

Immediately adjoining these low lands of the future city, where it is necessary to fill in order to build, are high hills, with, so far as they have been established, inaccessible grades of the streets in many places.

The hill on the Potrero south of Mission Bay rises in one place to the height of three hundred feet above city base, and the hill on the ridge in South San Francisco, south of the mouth of Islais Creek, rises to the height of two hundred and sixty feet above the same level.

The tops of these hills appear to be the proper places for obtaining materials with which to fill up the adjacent low lands, and if they are cut down so as to make the grades of the streets over them convenient and easy and the filling in the shallow waters adjacent to them be brought up so as to make a proper system of drainage practicable, these portions of the city would be greatly improved and the property be rendered vastly more valuable. The ridge south of Mission Bay, and particularly the high peninsula leading out to Hunter's Point, would then become very desirable sites for residences.

Another matter of importance closely connected with this subject is the reconcilation with a suitable plan of streets of several incongruous surveys, with which the new parts of the city are now affected. The streets and roads in some of these surveys are so badly laid out that they can never be made to harmonize with any proper system of streets for the surrounding city.

There ought to be several avenues or new streets laid out in order to afford easy and direct communication with the new portions of the city. These new avenues should follow the lines of natural drainage as nearly as possible, so that while they furnish the natural roads for communication they will also greatly facilitate artificial drainage.

Islais Creek is one of the localities demanding such an avenue. It will not only drain a very large extent of City area in the future, but also a part of San Mateo County, and there must be, in time, a large sewer constructed in or adjacent to the bottom of the valley, to accommodate the drainage, the creek itself being filled up the same as is to be done in Mission Creek.

By the prolongation of Plumas street until it intersects Islais Creek, and then constructing an avenue up the creek to some point near the San Jose Railroad, the objects in view will be accomplished.

Plumas street appears to be the natural outlet for the main sewer, which will eventually become necessary for the drainage of the water shed of Islais Creek. I have, therefore, represented it on the sewer map as being prolonged until it intersects the creek, and have also shown on the map such changes

of grades in the lower portion of the valley of the creek as will become necessary, if this suggestion should be adopted.

There are other new avenues that ought now to be opened, but these need not be touched upon in a report on the subject of drainage, further than to say that such avenues can now be opened at very slight expense, compared with their benefits.

We can do now for the outskirts of the city (soon to become densely populated) for a very little money, and with great benefit to present and prospective values of property, what has recently been attempted at great cost in another portion of the city, by opening Montgomery avenue.

VENTILATION OF SEWERS.

In investigating the subject of the ventilation of sewers, it should not be forgotten that the object of the sewers is to convey away rain-water, sewage matter and sub-soil waters from the sites of our houses.

The object of man-holes is to enable us to maintain a proper supervision over the sewers; to find out places where the sewers may be defective without breaking up the streets to ascertain the position of leakages or stoppages; to cleanse the sewers if necessary, and finally, to afford the means of ventilating the sewers by perforating their covers.

The man-holes in this, and in most other cities, are placed in the middle of the streets, directly over the sewers. By placing ventilators in the middle of the streets we remove the point of the escape of the sewer air to the farthest possible distance from the houses and the passenger traffic on the sidewalks. Besides, sewer gas when escaping in the middle of the street has a better chance of immediate dilution with the atmosphere before it has time to do mischief, than when escaping at any other point.

The object of catch-basins or gullies is to provide the means of receiving rain water, surface and waste water into the sewers. They are placed in the gutters on the sides of the streets close to the sidewalks, usually at the corners, but not necessarily at the four corners as is generally the custom. They should be trapped in all cases; otherwise the sewer air will escape along the sidewalks and become extremely offensive, and at times dangerous. They should connect with the sewer by branch pipes from not less than six inches to twelve inches in diameter, in accordance with the size of the sewer with which they connect.

A trap is a barrier, usually a water barrier, placed between a sewer or drain on one side, and the external or interior air of our houses on the other side. These water-traps usually partake of the nature of an inverted syphon, and are liable to become untrapped from various causes, thereby allowing the escape of sewer gas, which, if the sewer is badly ventilated, is known the world over to be dangerous to health. If it be allowed to escape into our houses, particularly into sleeping apartments, it induces diseases, notably typhoid fevers.

Many people who have not studied the subject tell us, "I am in no danger from this cause of disease; my house stands on high ground; and every pipe from bath-tubs, sinks, water-closets, wash-bowls, etc., are trapped so that no air from the sewers can enter the apartments." The prevalence of typhoid fever in the fine palaces of New York and other cities shows that such opinions are erroneous.

Having said this much, it will be well, perhaps, to show in what manner the sewer gases escape into bedrooms in spite of all precautions.

For the sake of clearness, take the case as it now exists in almost any street in this city; say Jackson, Washington, Clay, California, Pine, or Bush streets, having sewers starting at the top of the hill and running to the bay. Being without any openings for ventilation, they are sealed pipes, into which the house drains empty.

Of course, when first built, they are filled with air; but as soon as they come into use, and water and sewage matter enter into them, some of this air must escape. Each cubic foot of water will displace a cubic foot of air—the water running down to the bay, and the gas ascending to the upper end of the sewer, to escape there, unless ventilators are provided for its escape elsewhere.

Now suppose a heavy rainfall, added to the house sewerage, fills the sewer half-full of water and other fluid matter. The air in the sewer, in that case, if it cannot escape, must become compressed into half its volume, occupying the upper half of the sewer. According to the law of the compressibility of gases, their pressure is inversely as the space occupied.

In the case supposed, therefore (no outlets being provided for its escape), the pressure of the gas in the upper half of the sewer becomes equal to one atmosphere, or to fifteen pounds in a square inch; which is equal to a column of water about thirty-four feet high. No traps can resist such a pressure, and the air must escape through them into our houses. In this way, the constant variation of the quantity of fluid matter entering into a sewer or house drain, or, in fact, into a connected system of sewers, gives rise to corresponding variations of pressure in the gases in such sewers and drains, by which the security of traps are constantly endangered, unless we provide openings for the free exit of the sewer gases, and the free entrance of the outside atmosphere into the sewers.

One of the first things, therefore, to improve the existing sewers of this city is to provide for their proper ventilation through the man-holes into the open streets, so that sewer air may not be forced up through the house drains. This can be easily and cheaply done by perforating the covers of the present man-holes with a suitable number of half-inch holes, through which the gas can escape whenever there is any excess of pressure of air in the sewers and through which free access is given for the external atmosphere to enter and pass through the sewers whenever there is any tendency to a vacuum in them, thus rendering the traps comparatively safe from being sprung, and rendering the sewer gas innocuous, for it is known that such gas when mixed with a large quantity of atmospheric air is comparatively harmless.

While on this subject of sewer gas springing the traps and escaping into our houses, it may be well to state that there are many other forces at work in a sewer besides the one just mentioned. Among these are heat, difference of temperature between the external atmosphere and the internal air of the sewers, barometric changes, vapor of water, winds, position of the outfall of the sewer, friction and leakage. The influence of all these and other causes is discussed in the most recent works on the subject, but as it would greatly add to the length of this report to quote them here, I content myself with merely mentioning them, so that you may know they have not been overlooked. Baldwin Latham's work on Sanitary Engineering contains the most exhaustive discussion on the subject of the ventilation of sewers.

The present man-hole covers in the city, as well as those to be constructed in the future, should be thus perforated; and, to assist further in counteracting the poisonous influence of the gas, recourse has been had in England to the use of charcoal, so placed in the man-holes and other ventilating passages as to render it impossible for the gas to escape without passing through the charcoal.

It is well known that all porous substances have more or less the power of absorbing fluids and of absorbing and condensing gases within their pores. Professor Liebig says, in his letters on chemistry, that one cubic inch of beechwood charcoal contains pores equal in area to one hundred superficial feet. In alluding to the use of charcoal for ventilation, Dr. Stenhouse says: "The efficiency of charcoal appears never to diminish, if it is kept dry and its pores are not choked with dust." Dr. Welcker says: "It (charcoal) possesses the power not only of absorbing certain smelling gases, such as sulphuretted hydrogen and ammonia, but also of destroying the gases thus absorbed, for otherwise its purifying action would soon be greatly impaired. It is very porous and its pores are filled with condensed oxygen to the extent of eight times its bulk. We have, therefore, in charcoal oxygen gas in a condensed and more active condition than in the common air which we breathe. Hence it is that organic matter in contact with charcoal is so rapidly destroyed. The oxygen that acts on organic matter and burns it is speedily replaced, and the process goes on continually."

Charcoal has been used in various ways to assist in the ventilation of sewers, but the most efficient and economical plan hitherto used is the form adopted by Mr. Baldwin Latham in "Latham's Patent Ventilator." This instrument does not obstruct the escape of the gas, although the latter is compelled to come in contact with the charcoal. It affords the most efficient application of charcoal to oxydize sewer gas that is at present known to sanitary engineers, and I recommend its use on the sewerage system of San Francisco, especially whenever the streets are comparatively narrow.

A section of this ventilator may be seen on reference to figure No. 8. It consists,

1st. Of a cover, the central part of which is solid, so as to form an efficient cover for the charcoal and protect it from rain or water used in watering the streets. Around the central or solid part of the cover there are concentric circles formed of open grating, through which air escapes or is drawn into the sewer.

2d. A frame for receiving the cover, and on the bottom of which hangs the dirt box and charcoal ventilator.

3d. The dirt box which hangs in a groove made in the lower part of the frame. A portion of the dirt box is converted into an open spiral trough which is used for conveying away the overflow water from the dirt box to the sewer. There is a slat in the side of the dirt box communicating with the upper portion of the spiral trough, through which the water enters the trough.

4th. A spiral tray for containing the charcoal. This is screwed into the ventilator over the spiral trough by means of a handle attached. Each tray consists of a square central shaft having projecting arms of **T** iron. These arms are attached at the extremity by a strap of iron coiled spirally, and the bottom of the tray is filled in with net work. The arms divide the whole tray into so many compartments for retaining the charcoal, which in consequence is kept in position, or otherwise it might have a tendency to slide down to the bottom of the tray.

No attention appears to be given to the catch basins in this city, except to build them, and to remove the sand and other substances from them when they become so filled up that the water of heavy rains cannot pass through them into the sewers. They are used more as cesspools than as catch-basins or gullies for water. When cleaned out, they are found to contain substances which they were never intended to receive; such as street dirt, garbage of all kinds, ashes, shavings, sticks, brickbats, coal, bones, bottles, rotten fruit and vegetables, old clothes, boots, shoes and stockings, broken crockery, etc. In some parts of the city dead dogs, cats and rats have been found in these catch-basins. The facility with which their covers can be removed and replaced, particularly at night, invite to this easy way of disposing of all kinds of garbage.

These basins were intended to be kept full of water so that their traps may be sealed at all times.

It should be made the duty of some officer, or of some department of the city government, to see that they are always in order and full of water, and any person found throwing any substance into them should be subjected to a fine.

FLUSHING AND CLEANSING SEWERS.

In the system of sewers which I now propose, and which are represented on the large Sewer Map, I have endeavored to make all new sewers to be hereafter constructed, self-cleansing by their own sewage, by making them of the proper size, and giving them the necessary slope for that purpose.

There are some of the existing sewers of the city, however, which are too large, and laid on too low a grade, ever to become self-cleansing in the dry season of the summer and fall.

This is particularly the case in the present sewers east of Montgomery street, between Jackson and Pine streets. And it may happen that, when some of the new sewers now proposed come to be built, that they will not at

first be self-cleansing. As, for example, a new sewer may be built in certain streets in the new portions of the city before the blocks alongside of the sewer are compactly built up and occupied. If such a sewer drains only a few houses on any one block, it is manifest, for the time being, that there will not be sufficient sewage matter from these few houses to produce the necessary velocity to render such a sewer self-cleansing.

In all such cases—that is, whenever the sewers are not self-cleansing by their own sewage—artificial means must be resorted to, to cleanse them, or rather to remove the deposits that may accumulate in them.

Many expedients have been resorted to for effecting this purpose. The first and most natural one was to send men and boys into the sewers, and remove the deposits from them in buckets through the man-holes in the middle of the streets.

This vile practice still obtains in this city, but it has seen its day and its end in all well drained cities of our Atlantic seaboard and in Europe; and when the true principles which should govern the proper construction of sewers are better understood and acted upon in this city, the disgusting operation will come to an end here also.

The most common and most satisfactory manner of cleansing sewers, whether large or small, is by flushing—that is, by increasing the volume of liquid matter passing through the sewers in a given time.

Flushing is of two kinds:

1st. By making use of the sewage matter itself for cleansing the sewers. This is accomplished by damming up the sewerage within the sewers, and then suddenly liberating it.

This requires an elaborate system of special flushing-gates or sluices fixed in the sewers, to act first as a dam to the sewage and then as a gate giving it free passage. These gates are of various descriptions and are fully described in some of the works on sewerage. They are expensive in construction and require constant care and attention to render them effective.

I apprehend the latter would be the chief objection to their introduction into the sewers of this city. If we have not yet learned to take care of and keep clean the simple catch-basins alongside of our sidewalks, it is fruitless to hope that we will be able to keep in order and operate successfully an elaborate system of sluice-gates fixed in the sewers, where they cannot be seen or worked except by an expert.

After careful examination of all the authorities on this subject within my reach, I cannot recommend this system of flushing sewers in San Francisco at the present time. At best, supposing it to be carried out as perfectly as possible, it is only a poor expedient for cleansing the sewers.

The second method of flushing sewers is by water. It is manifest that sewers can be more perfectly cleansed with pure water than with sewage matter.

There are several ways of introducing the water of a city into its sewers for the purpose of flushing them. One is from the fire plugs of the water mains:

another by pumping the water from tanks with fire engines. Both of these methods would be very expensive here, because they require a large quantity of water.

The true method is to introduce a large volume of water into the sewer for a short time. In this way a sewer will be cleansed with a far less quantity of water than is possible if the water be introduced by driblets.

The method of introducing water into the sewers for the purpose of flushing them varies in different cities. In some cases tanks are provided for water, the contents of which are from time to time discharged into the sewers by means of valves. In other cases cisterns for holding water are constructed, the contents of which are similarly discharged into the sewers. In Dantzic, special supplies of water for flushing the sewers are provided.

The most simple system is to draw the water direct from the water mains into the sewers, by means of pipes of the proper size, having valves which can be opened and closed from the level of the street. In this case, provision must be made to check the velocity of the water, without decreasing its volume, in case the pressure of water in the main is so great as to endanger the safety of the sewer by the water escaping into it.

This method, however, presupposes an abundant supply of water in a city. If the plan now proposed for the drainage of this city is carried out, or so far executed as to provide the proper outfalls for the sewers, we will soon know which sewers will require flushing.

I think provision should be made, as soon as possible, for flushing the lower ends of the sewers from Jackson street to Pine street; and I believe the cheapest and most thorough method of cleansing these sewers at the present time will be to buy water from the Spring Valley Water Company for that purpose. If objection is made to connecting the water mains with the sewers, in order to effect this object in the simplest way, it is probable that the cisterns now constructed along Dupont and Kearny streets can be utilized. By connecting them with the sewers, by large pipes leading from their bottoms down hill, until they can be introduced into the sewers, the whole contents of a cistern can be discharged into the adjacent sewer in a few minutes. In this way, the water that may be used for flushing purposes, in this district, could be accurately ascertained. In all the other districts of the city, I recommend that the flushing arrangements await future necessities.

It is within the range of possibility, before any great outlay will be required for that purpose, that this city may be supplied with an abundance of water, and possibly may own the works herself; in which case, the water for flushing will not have to be purchased, and the arrangements for that purpose may be greatly simplified.

It has been proposed by some persons to pump up salt water from the bay, for the purpose of flushing the sewers, sprinkling the streets, washing out street gutters, and for extinguishing fires, etc. etc.

It is not doubted but such an additional supply of water would possess some advantages in this city at the present time, but it would duplicate the

system of water pipes, and as the water would have to be pumped, it would, in the end, probably be found more expensive than to purchase water from the Spring Valley Water Company for these purposes, even at present rates. When an additional supply of water for this city is introduced, either by a private company or by the city itself, as must be the case in a few years, the price of water must necessarily be so greatly reduced that it may be used lavishly for all the purposes above named without its use being felt as a tax on the City Treasury.

In this connection it should not be forgotten that when the sewerage system is so far completed that all connections with the outfalls of sewers are made, there will be but little flushing required, and if water were abundant, and proper connections between the water mains and the sewers established, very few men would be required to flush the sewers. Probably two, or at the most three men, would be sufficient for the entire city.

The expense of three efficient men need not be more than four thousand dollars per year, and the sewers would then be thoroughly cleansed; whereas the city now pays fifteen thousand per year for this purpose, and the sewers are not half cleansed.

For the reasons above stated, I cannot recommend the pumping of salt water for the purpose of flushing the sewers and sprinkling the streets at this time.

The sewers should be flushed at night, when the water in the water mains is not required for other purposes, and when the effect of disturbing the sewage and gas in the sewers will be least perceptible.

Pipe sewers are too small for a man to enter them. If, therefore, they require cleaning some other method must be resorted to. It has been found in our Eastern cities, and in European cities where pipe sewers have been extensively introduced, that they can be kept free from deposits, and need not therefore be entered. Baldwin Latham, in his work on "Sanitary Engineering," says: "There is no more necessity to send men into sewers to carry out such disgusting operations, than there is to send boys up chimneys to sweep them."

As there ought to be a man-hole or lamp-hole at every change of direction or change of grade in a sewer, it is manifest that if the sewer is clear, by lowering a lamp into the sewer through such man-hole or lamp-hole, we can see from man-hole to man-hole, and discover the location and nature of any deposit, obstruction, or defect in the intermediate sewer.

Proper tools must be provided for clearing out any deposit in the pipe sewers. These tools are of various kinds, jointed and made to fit the form of the sewer, or to properly take hold of the obstruction to be removed. A description of these tools can be found in Baldwin Latham's work on sewerage.

HOUSE-DRAINAGE.

The construction of house-drains in this city depends at present upon the property-holders, each one building his own drains as he thinks best. House

drains are, therefore, private property; but, in a sanitary point of view, what concerns one citizen concerns all. I cannot, therefore, be considered as touching on private rights by devoting a few words to this subject.

The efficiency of a system of sewers is dependent on the house drains and minor sewers which convey the waste water from the houses to the sewers; but if these tributaries fail to perform the duties required of them, the sewers either remain idle or are comparatively useless, and all the care bestowed on them is in vain.

Baldwin Latham, in his celebrated work on "Sanitary Engineering," says: "The work of house-drainage is the crowning point of a system of sewers. Upon the care and skill bestowed in carrying out this portion of the sanitary requirements of a district in a great measure will depend the ultimate success of the works in a sanitary point of view. It cannot be overlooked that imperfect sanitary works in connection with the houses in which we reside will result in the malarious influence of the sewers and drains being brought to bear directly upon their occupants. As a rule the works of house-drainage are carelessly and thoughtlessly carried out, and often inflict untold injury on the luckless occupants of the house in which they are executed. It should be said that the train of evils which often follows the improper execution of house-drainage works is not due, generally speaking, to the character of the workmanship, but to faults in principle in the arrangements adopted.

"House-drains are intended to carry away from the houses all liquid refuse, waste surplus water, and fæcal matter, and while performing this duty, they should be so designed and constructed as to prevent the entrance of sewer gas into the house. The rate of flow through house-drains is liable to considerable fluctuation, and the temperature varies greatly; and these two causes, as already pointed out, of necessity require that ample ventilation for the drains shall be provided."

J. Herbert Shedd, in his report on sewerage in the city of Providence, says: "No amount of skill, care and expense in building the public sewers will relieve the property-holder from the necessity of constructing his private drains with all possible care. These drains often cause in the aggregate more trouble on account of imperfect plan and construction than all the rest of a sewerage system.

"To keep the sewer gases out of houses it is not enough to place water traps at the various inlets of the house-drain itself. The compression of the air in the drain, which may often arise from many causes, will blow through any practicable traps at the inlets throughout the house, and the vacuum which has a tendency to form every time a large amount of water is thrown into the lower part of a house-drain makes a suction upon every trap that is above it. In this way the water is often drawn out of such traps, and until they are again filled with water, a communication is opened for the passage of foul air into the rooms. Any imperfections at the joints of the drain will also allow such communication. There may be a dangerous amount of sewer air in the house without its presence being suspected, as, in its worst forms,

it is not necessarily of strong odor, nor in any way of a character to force itself on our attention. To prevent these evils there should be a systematic provision for constant ventilation in the drains, of such a character that the tendency would be rather for a draught from the house into the drains than from the drains into the house.

"The first requirement is to shut off, as far as possible, all communication for air from the public sewer to the house drain; so that, whatever the mismanagement of the sewers, either in construction or cleansing, the householder may be reasonably protected."

For this city, I would recommend Mr. Shedd's principle of house-drainage; and the drawings herewith submitted, with the Sewer Map, illustrate the plan which he recommends. I append a brief description:

"The trap in the house drain, above referred to, is placed just outside the walls of the house. Immediately back of it, between it and the house, the down spout for carrying rain-water from the roof enters the house drain." Again: "From the highest part of the soil-pipe within the premises, a pipe of the full size is carried to a point above the roof of the building, making another open communication with the outer air. These two pipes, with the drain, form a syphon; and, under all ordinary circumstances, there will be a constant flow of air down the cooler leg and up the warmer leg, keeping up a circulation of considerable value. Now, if the compression of air in the public sewer blows through the lower trap in the drain, the sewer air has a free escape to the outer air, without causing an injurious pressure on the traps of the various inlets to the drain; and a sudden rush of water poured into the lower part of the drain is followed up by the outer air through one leg of the syphon, so that no vacuum can be formed sufficient to suck the water from the inlet traps. In the case of heavy rain, when the down spout is filled with water, no injury is done, but only a cessation occurs, for the time, of the flow of outer air through the syphon."

"Private drains are often obstructed by carelessness on the part of those using them, in admitting substances which they were not intended to receive."

"Perhaps the most common and the most certain cause of obstruction to house-drains arises from grease, which, though fluid when it is hot, soon cools in the drains, and gradually but certainly closes them up. I have known drains from thirty to fifty feet in length closed nearly the whole distance from this cause; the amount which will collect from the waste of a single family is surprising to those who are not familiar with the subject. It ordinarily causes much more expense and inconvenience to allow this substance to run into the drain than to catch it in a grease-trap, from which it can be conveniently removed."

A trap for this purpose is shown on the sketch illustrating "house-drainage." The proper position for a grease trap is under the sink. Of course, the joint between the body of the trap and the cover must be well sealed in order to prevent any sewer air from escaping.

The material to be used in the construction of the house-drains should have as smooth a surface as possible. It will then cause the least amount of friction, and consequently the least impediment to the progressive motion of its contents. The internal projections and the many impediments to the flow of sewage which are unavoidable in a brick drain, force upon us the necessity of looking for a material which will guarantee a smoother surface, and which will also afford the assurance of impermeability without being subject to the frequent patchwork to which the numerous interstices of a brick sewer always render it liable. Glazed earthenware pipes of six inches diameter for a house of ordinary size are recommended as capable of obviating all these difficulties. For factories, hotels, and other large buildings, the size should be increased.

In laying house-drains, great caution should be observed in making proper connections with the street sewer. These connections must be so effected as to prevent any upward motion of their contents when the sewers become surcharged, and they should be made so as not to obstruct in any way the flow of the sewage.

To accomplish this end, they should in all cases be made to connect with the sewers at acute angles considerably down stream.

Connections between house-drains and sewers should be always made by a competent person. This is a matter which requires much care and attention, for the reason that most of the sediment in the sewers is caused by the objectionable manner in which these connections are generally made.

If the axis of the lateral is below that of the main sewer, or if it has not an increased inclination for the curve, deposit will take place. At the point of connection the axes of both sewers should be, if possible, on the same level, and be made to connect down stream at acute angles of not more than forty-five degrees, or less than thirty-six degrees, and the curve on a radius of not less than twenty feet.

To facilitate the means of connecting the house-drains with the sewers, the latter, if pipes, should have lengths inserted at convenient distance having outlet sockets for receiving the ends of the house-drains, and these being slightly tapered, or conical in form, will be easily jointed with cement. In brick sewers, facilities will be afforded for connections with the house-drains by inserting a socket of stoneware to receive the drain pipe. This socket should be formed with a flange at the other end to surround and cover the opening in the sewer, which can then be made good with a ring of cement.

When sewers are to be laid in the streets which have not yet been entirely occupied with buildings, it is proposed to have the sockets for house-connections inserted at intervals of twenty-five feet, and to have them plugged until they shall be required to be used; this will obviate the necessity of tampering with the walls of the sewers, and thus prevent the danger of injury in every case where a proprietor may require to connect his house-drains with the sewers.

The civic authorities should exercise a surveillance over the mode of laying house-drains and connecting them with the sewers by licensing a competent

officer to discharge these duties, and exacting bonds as a guarantee for the faithful performance of the work—permits for that purpose being made always necessary when a connection is to be made. With these precautions there will be a guarantee of the sewers being properly laid, and all the details properly executed.

Although house-drains are laid at the expense of the owners of the premises to be drained, it has been found necessary in all large cities to establish rules by which such work must be done, under the immediate inspection of some competent officer. "These instructions," says Shedd, "have been proved by experience in many cities to be necessary to secure housekeepers from the great annoyance to which they would be subjected from imperfect arrangement or unfaithful execution."

The experience in Chicago is thus expressed by Mr. Chesbrough: "As the usefulness of the sewers depends so much upon the faithfulness with which house-drains are laid, past experience shows that this work ought never to be put into the hands of unfaithful or irresponsible persons. In some cases not only individuals have suffered much annoyance, as well as loss, but the sewers have had to be cleansed at an otherwise needless expense."

"Probably no system better than licensing competent and faithful persons can be devised; but great caution should be used in granting the licenses, for the fact of unfaithfulness is not likely to be known in many cases till its consequences appear, which may not be for a year or two after the work is done, and the doer out of the city."

In order to furnish useful hints as to the proper rules to be established in this city under which private drains should be laid, I append to this report a copy of the rules for laying drains which have been established in the City of Providence, R. I., copied from the work of Mr. J. Herbert Shedd.

"A COPY OF RULES FOR LAYING PRIVATE DRAINS IN THE CITY OF PROVIDENCE, R. I.

"*Application for Private Drains.*

"1st. Applications for permits to connect with any sewer which has been constructed, or which is in process of construction, by a committee appointed by the Board of Aldermen, must be made in writing to the Water Commissioners by the owners of the property to be drained, or by their duly authorized attorneys, and must be accompanied by a clear description of the premises to be drained, and the drains required; and also by certain agreements, all as provided in the printed form of application issued by said Commissioners.

"2d. No one but a drain-layer duly licensed by the Water Commissioners will be allowed to make connections with the public sewers named in the above section, nor lay any drains in connection therewith.

"3d. At least twenty-four hours notice must be given at the office of said Commissioners before any street or public way can be opened for the purpose of laying a private drain.

"4th. No drain-pipe can be extended from work previously done and accepted, or new connections of any kind be made with such work, unless previous notice of at least twenty-four hours is given to the engineer in charge of private drains.

"5th. No work of laying drains can be commenced or continued unless the permit is on the ground, in the hands of the drain-layer, or some one employed by him.

RULES FOR LAYING DRAINS.

1. In opening any street or public way, all materials for paving or ballasting must be removed with the least possible injury or loss of the same, and, together with the excavated material from the trenches, must be placed where they will cause the least practicable inconvenience to the public. As little as possible of the trench must be dug until the junction piece into the sewer is found, unless it is first determined to make a new opening into the sewer.

2. Whenever the sides of the trenches will not stand vertically, sheeting and bracing must be used to prevent caving.

3. No pipes or other materials for the drains can be used till they have been examined and proved by the Chief Engineer, or by one of his assistants, or by a duly authorized inspector.

4. The least inclination that can be allowed for water-closet, kitchen, and all other drains of not over six inches diameter, liable to receive solid substances, is one-half inch in two feet; and for cellars or other drains, to receive water only, one-quarter of an inch in two feet, all drains to be laid at a grade of not over one-half an inch in two feet between the sewers and the sidewalks.

5. The ends of all pipes not to be immediately connected with water-closets, sinks, down-spouts, or catch-basins, are to be securely guarded against the introduction of sand or earth, by brick and cement, or other water-tight and imperishable materials.

6. All pipes that must be left open to drain cellars, areas, yards, or gardens, must be connected with suitable catch-basins of brick, the bottoms of which must not be less than two and a half feet below the bottom of the outlet pipe, the diameter not less three feet, and the form and construction of which are to be prescribed by the officers named in the third rule; when meat packing-houses, slaughter-houses, lard rendering establishments, hotels, or eating-houses, are connected with the sewers, the dimensions of the catch-basins will be required to be of a large size, according to the circumstances of the case. When the end of the drain-pipe is connected with a temporary wooden catch-basin for draining foundations during the erection of buildings, the drain-layer will be held responsible that no dirt or sand is carried into the drain or sewer from such temporary catch-basin.

7. No private catch-basin can be built in the public street, but must be placed inside of the line of the lot to be drained, except when the sidewalks are excavated and used as cellars.

8. No privy-vaults can be connected with the sewers, except through an intervening catch basin, and the discharge-pipe of the vault must be high enough above its bottom to effectually prevent anything but the liquid contents of the vault from passing into the drain.

9. The inside of every drain, after it is laid must be left smooth and perfectly clean throughout its entire length.

10. In case it shall be necessary to connect a drain-pipe with a public sewer, where no junction is left in said sewer, the new connection with such sewer can only be made either by one of the employees of the Commissioners, or when an officer named in rule third is present to see the whole work done.

11. Whenever it is necessary to disturb a drain in actual use, it must in no case be obstructed without the special directions of one of the officers named in rule third. No pipe-drain can be laid above the bottom of a wooden drain, whether in actual use or not, unless the pipe is made to rest either on brick or stone, or other suitable support. In no case will drain-pipes be allowed to rest on wood or other perishable material.

12. The back filling over drains after they are laid, must be puddled, and together with the replacing of ballast and paving, must be done within forty-eight hours after the completion of that part of the drain lying within the public way, and done so as to make them at least as good as they were before they were disturbed, and to the satisfaction of the Commissioners and their Engineer, and the owner will be held responsible for any subsequent settlement of the ground. All water and gas pipes must be protected from injury or settling to the satisfaction of the Engineer.

13. Every drain-layer must enclose any opening which he may make in the public streets or ways with sufficient barriers, and must maintain red lights at the same at night, and must take all other necessary precautions to guard the public effectually against all accidents from the beginning to the end of the work; and can only lay drains on condition that he shall use every precaution against accidents to persons, horses, vehicles, or property of any kind.

14. In case a water-pipe or gas-pipe should come in the way of a drain, the question of passing over or under the water or gas pipe, or of raising or lowering it, must be determined by one of the officers named in rule third. In no case can the drain layer there be allowed to decide the question for himself.

15. No exhaust from steam-engines can be connected with the private or public drains, and no blow-off from steam-boilers can be so connected without special permission from the Commissioners or their Engineer.

16. Such information as the Commissioners have with regard to the positions of junctions will be furnished to drain-layers, but at their risk as to the accuracy of the same.

17. When any change of direction is made in the pipe, either in a horizontal or vertical direction, curves must be used; no pipe can be clipped in any case.

18. All persons are required to place an effectual trap in the line of drain

just before it leaves the premises, and to make an open connection with a down spout back of the trap; also to make an open connection with the highest part of the soil pipe within the premises, through a large pipe or flue, to a point above the roof of the building.

19. Every person violating any of the provisions of the foregoing rules shall pay a fine of not less than twenty, nor more than fifty dollars."

I cannot complete this report without referring to the assistance rendered on the work by B. S. Alexander, Lieut.-Col. of Engineers, Bvt.-Brig.-Gen., U. S. A. To him I am under great obligations for his many valuable and practical suggestions.

To Mr. Guerin, and other assistants, for the faithful attention to the duties assigned them, I am under obligations.

The following is a list of the maps and drawings accompanying this report:

1. Sewer Map of the City and County.
2. Sewer Map of South San Francisco.
3. Sewer Map of the Pumping District.
4. Map showing Connections of Lateral with Main Sewers.
5. Map showing Sewer with House Inlets.
6. Map showing Manholes.
7. Map showing Catch Basins.
8. Map showing Ventilator in Manholes.
9. Map showing House Ventilation.

[Maps 7, 8 and 9 are omitted in this report, but are on file in the office of the City and County Surveyor.]

All of which, with letter from Gen. B. S. Alexander approving said system, is respectfully submitted.

WM. P. HUMPHREYS,
City and County Surveyor.

SAN FRANCISCO, CAL., May 22, 1876.

WM. P. HUMPHREYS, CITY AND COUNTY SURVEYOR:

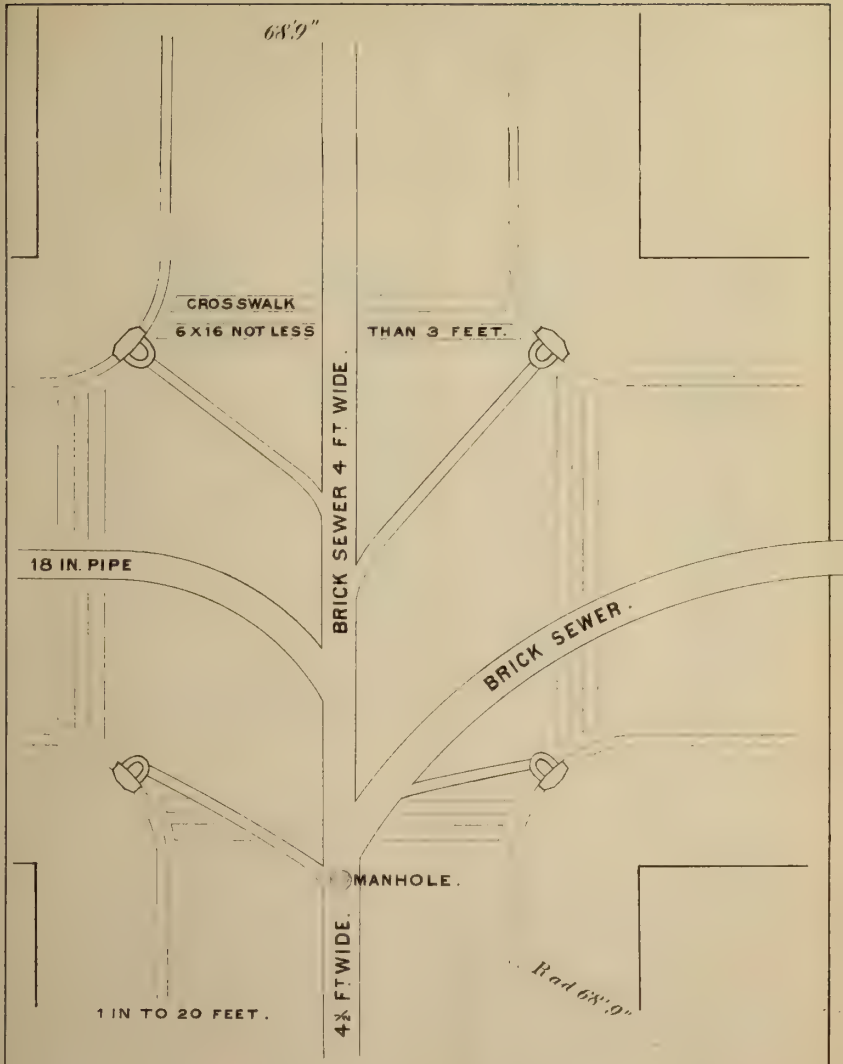
Dear Sir—In reply to your note of the 20th inst., I can state that I have carefully examined the plan which you have prepared for a complete system of sewers for the drainage of this city, together with all the accompanying drawings.

They all meet my entire approbation.

I have also carefully read your report on the subject. I think it presents the necessity, advantages, and mode of obtaining a proper system of sewerage for this city in a very clear and forcible manner.

Very respectfully, your obedient servant,

B. S. ALEXANDER.



STREET CROSSING

SHOWING CONNECTIONS OF

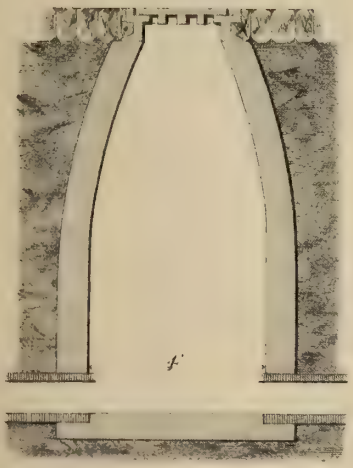
LATERAL SEWERS WITH MAIN SEWER

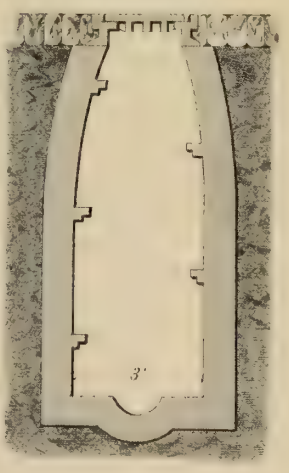
ALSO

CROSSWALKS AND BRANCH PIPES FROM CESSPOOLS.

1 IN TO 20 FEET.

SECTIONS OF MANHOLE.

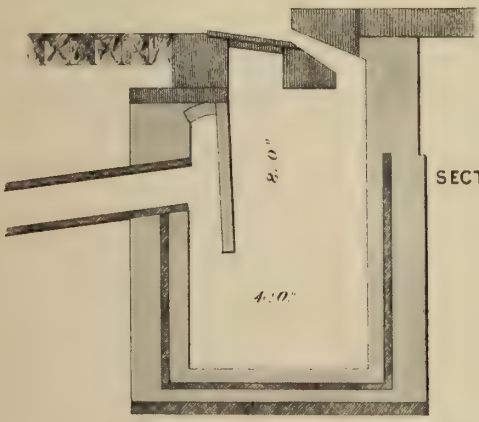




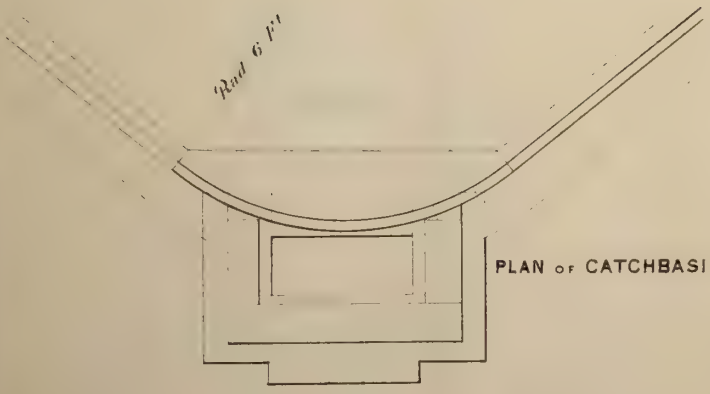
PLAN of MANHOLE.

COVER.

1 IN TO 4 FEET.



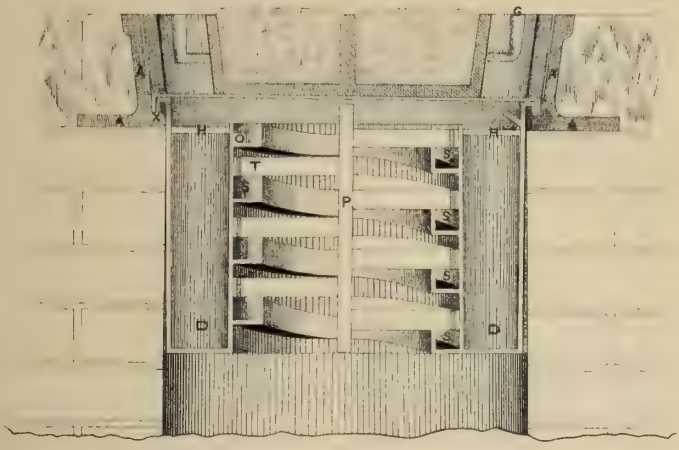
SECTION OF CATCHBASIN.

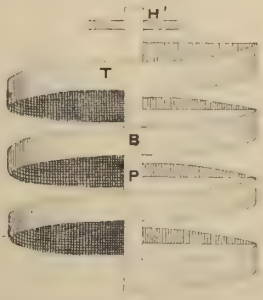


PLAN OF CATCHBASIN.

1 IN TO 4 FEET.

VENTILATOR
FOR
SEWERS AND DRAINS.



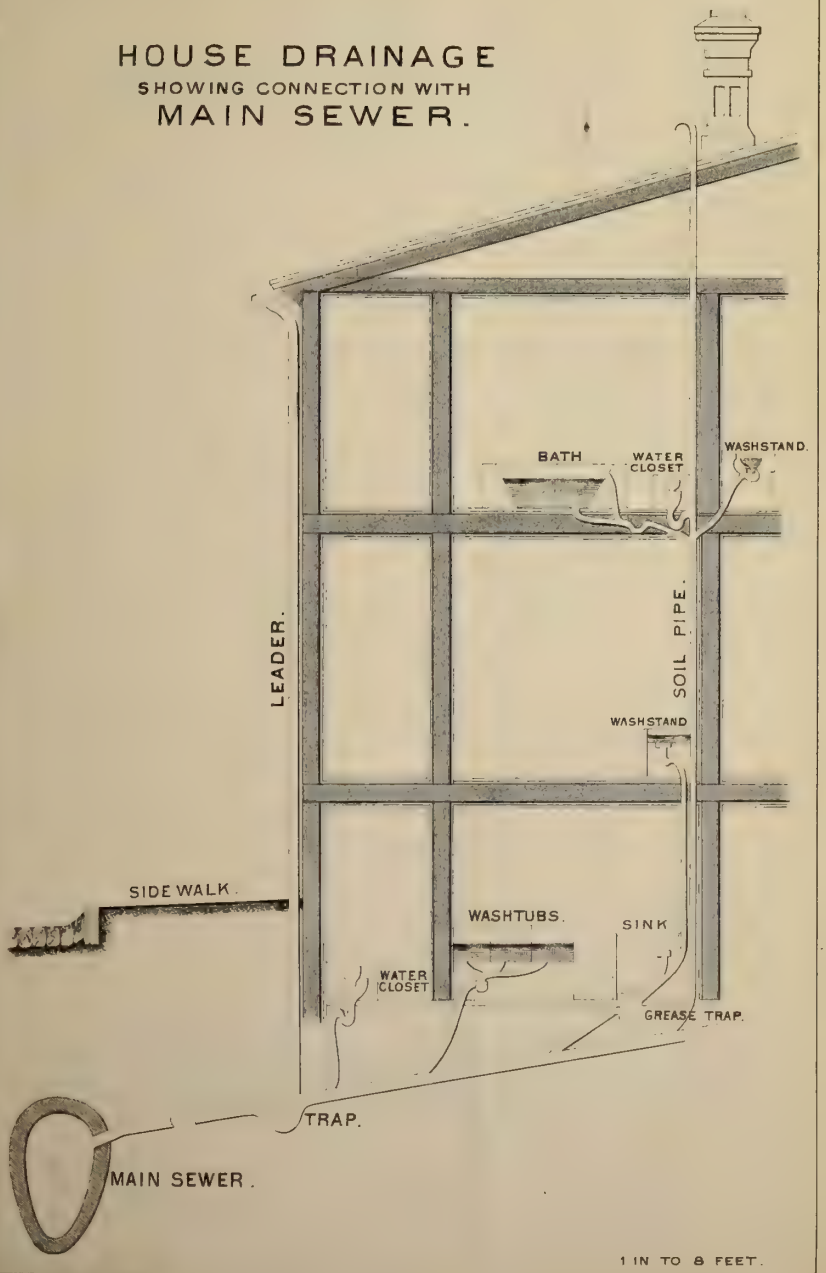


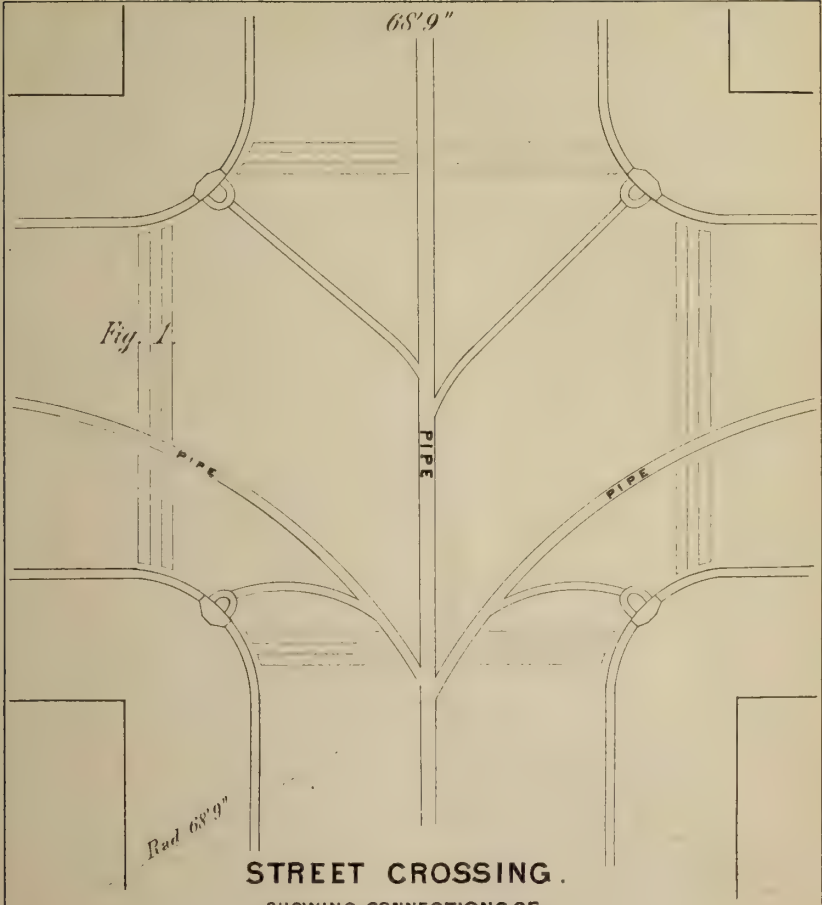
Explanation

A. *Frame for receiving the cover.*
C. *Cover.*
D. *Dirt box hanging in groove* X.
G. *Open grating in the cover.*
H. *Handle to the Dirt box.*
O. *Stud in the side of the Dirtbox.*
P. *Central Shaft being Square*
S. *Open Spiral trough*
T. *Spiral trays containing Charcoal*
B. *Arms of* T *-Iron.*
H'. *Handle to Charcoal tray.*

1 IN TO 1 FOOT.

HOUSE DRAINAGE
SHOWING CONNECTION WITH MAIN SEWER.





STREET CROSSING.

SHOWING CONNECTIONS OF

PIPE SEWERS.

1 IN. TO 20 FEET.

Fig 2.

CONNECTION OF INLETS FOR HOUSE DRAINAGE WITH MAIN SEWER.

1 IN TO 10 FEET.

A MEMOIR

ON THE

WATER SUPPLY

OF THE

CITY OF SAN FRANCISCO

BY

WM. J. McALPINE.

1879:
C. A. MURDOCK & CO., PRINTERS, 532 CLAY ST.

WHO IS WM. J. McALPINE?

The following quotation is from the Evening Bulletin of July 15th, 1878:

"The name of William J. McAlpine, of New York, is associated with some of the greatest engineering works on the eastern side of the continent. He was at one time Chief Engineer of the Erie Railway. He was also the engineer who constructed the Albany, N. Y. and Chicago Water Works. The reconstruction of the Erie Canal was also accomplished by him. He is regarded as one of the most eminent engineers now living."

It might also have said that he is one of the four oldest members of the American Society of Civil Engineers, and was its President for many years, was for several years the only American member of the Institution of Civil Engineers of Great Britain, which is composed only of the most eminent Engineers of Europe; has been for many years, and is at present, a member of the Institution of Civil Engineers of France, Austria, and other European Societies; is a member of the American and Franklin Institutes, and of almost all of the scientific societies of the United States, etc; has been Engineer in Chief of the United States Navy, and constructed the U. S. stone graving dock at Brooklyn, N. Y., one of the most difficult engineering constructions in the United States; has been State Engineer and Surveyor General of the State of New York, and was engaged on the New York State Canals in constructing the large impounding reservoirs for the Champlain Canal, and also the most important works on the enlargement of the Erie Canal, immense aqueducts, locks, etc; was the Assistant President and Chief Engineer on the Erie Railway, the Galena and Chicago (now the Chicago and Northwestern), and also on the Ohio and Mississippi Railway; was the Chief Engineer, and designed all of the plans for the Brooklyn Water Works, and designed and executed the Water Works of Albany, N. Y., Chicago, New Bedford, Mass., and of many other cities, and has been Consulting Engineer on some of the largest bridges, railways, water and other hydraulic works in the United States and foreign countries; was the Engineer, and at one time, the General Superintendent of the New York State Capitol at Albany; was the Chief Engineer employed by the Iron Gate Iron Gate Commissioners, for rendering the cataracts of the Danube navigable for fifty miles on the borders of Wallachia, Servia and Turkey; is the author of Modern Engineering, Railway Management, The Principles and Practice of Public Water Supply, Engineering Tracts for the People, and of many other treatises on Engineering subjects.

A MEMOIR

On the subject of Supplying the City of San Francisco with Water;

BY

WM. J. McALPINE.

A public water supply to a city should have sources adequate, not only or the present demands for domestic uses, for manufactories, for public baths, for the shipping, fountains and irrigation of private and public grounds, for sprinkling the streets and flushing the sewers, and for the quick extinguishment of fires, but also for all of these purposes when he population shall have been trebled, and in addition thereto, with the means of extending the works at a future time, in conformity with some general plan, which, while adapted to a supply for the present, will permit of the future extension above indicated, with the least loss of the first expenditure.

The sources of water available for the city of San Francisco are as follows:

1. From wells within the area of the city or contiguous thereto.
2. By collecting the rainfall upon the elevated lands of the Peninsula south of the city, in large storing reservoirs, and conveying it in conduits to distributing reservoirs within the city, from which it may be distributed to all parts thereof.
3. By a corresponding collection, impounding, conveying and distributing the rain, which falls in the Mount Diablo coast range of mountains nearest the city, as in the Calaveras District.
4. Also from similar districts on the Coast range and from streams or lakes immediately beyond them.
5. From lakes and streams on the mountain slopes of the Sierra Nevada and the conveyance and distribution to the city as before mentioned, and

6. From modifications and combinations of the foregoing plans.

Schemes for a supply of water from these several sources, have been more or less examined and discussed by civil engineers and others, whose printed reports furnish a part of the data necessary to determine the relative advantages and expense of each. I have personally examined the sources, sites and routes of these schemes, and have considered all of the other matters necessary to a general, and in most cases a sufficiently particular understanding of the whole subject of the present inquiry.

The result of these studies will now be presented under the following general heads:

FIRST. The QUANTITY of water which is *now required* for the City, and the *additional amount* which will probably be demanded from time to time.

SECOND. The QUANTITY which can be *obtained* from each of the reliable and reasonably practicable sources.

THIRD. The relative QUALITY of the water which each source will furnish.

FOURTH. The CHARACTER, EXTENT and comparative EXPENSE of the several plans for procuring the requisite quantity of suitable water, for the present and future demand, from each source.

FIFTH. A COMPARISON of the most feasible of the schemes in regard to the usefulness, certainty of construction and maintenance, quantity and quality of the water and of the expense of introducing the same.

FIRST.

The quantity which is now and will probably hereafter be required.

The quantity of water which is required for all of the purposes for which a public work is intended to supply, as hereinbefore enumerated, may be considered as equal to thirty gallons a day, applied to the whole number of the population. This amount of water may be divided into three nearly equal parts, viz.: *One third* for the domestic consumption (for potation, cooking and washing for the whole population, and for baths and water closets, etc., for a portion of the people); *another third* for the various mechanical operations, hotels, restaurants, stables, public baths, fountains, etc, and for shipping; *another third* for the sprinkling of streets, flushing of sewers, extinguishment of fires, and for wastages.

When planning works, which are to be under municipal control, which may at times, be less efficient than individual management, the conservative engineer considers it necessary to have at command, twice the above named quantity. The experience of the best managed public water works of the Eastern cities confirms this estimate. The rate of consumption in the European cities is much less. The difference is

due to the habits of the masses of the people of the two countries. The present population of three hundred thousand, in San Francisco, would by this rule, consume an average of nine millions of gallons daily, as a minimum and a possible maximum of twice that quantity.

Any source of supply, to be entitled to consideration as a whole, should be sufficient to readily furnish thirty-six million gallons daily and ultimately a hundred or more millions to meet any probable and possible increase of the population, business and other demands for water.

A source which cannot furnish these quantities can only be considered as an adjunct to some other scheme.

Second.

The quantity which can be obtained from each of the proposed sources.

Preliminary to the consideration of this question, it may be proper to recall to recollection, that the source of all fresh water is primarily from the ocean, and secondarily from the atmosphere.

The quantity of fresh water which can be obtained from any district of country, depends upon the amount of the precipitation, the area steepness and porosity of the water-shed, the losses from evaporation, etc.

The capacity of the atmosphere for the absorption of moisture depends upon its temperature.* A warm wind blowing over the ocean becomes charged with watery vapor; When it reaches land which is cooler, it discharges some of it in dew, mist or rain. The ocean winds which are driven up the mountain slopes, encounter more and more cooled earths, and discharge more and more water in proportion to the elevation to which they are driven.

The precipitation at San Francisco averages two feet in a year; the chief part of the rain falls within four months, and a large proportion of it generally falls during two of these months. The rainfall on the top of the surrounding hills, is about twice as much as on the low parts of the City. While at the top of the Sierra it is from eight to ten feet, or more.

The temperature of the ocean winds, and of the lands along the coast, is nearly the same during the seven summer months, and the consequence is that no rain can fall, but during the five months of the autumn and winter there are greater or less differences between the temperatures of

* Note—A cubic yard of air at a temperature of 32 degrees. Fahrenheit, is capable of containing seven grains of water, and at 50 deg. about fifty grains; from 50 to 80 deg. a cubic yard of air will contain about as many grains of water, as the number of degrees of the thermometer. Above the temperature of 80 degrees, the capacity to receive watery vapor increases rapidly, and at 212 degrees the air can receive its own bulk. The tension of the water being then equal to that of air and ebullition is produced.

the ocean winds and of the land, which produce copious winter rains. The precipitation being always in proportion to these differences in temperature.

The rain water which is thus precipitated upon the land, divides itself into three portions; one of which passes off *visibly*, over the surface to its parent source the ocean; a second part enters the porous earth and rocks and flows *invisibly*, either directly to the ocean or to the flowing springs, or superficial water courses, and the remainder of the rain is *evaporated* from the surface of the ground, water courses, etc.

Generally from half to two thirds of the rainfall passes off either superficially or subterraneously. The former flows off comparatively quick depending upon the steepness of the surfaces of the ground, and the latter much more slowly, depending upon the looseness or compactness of the soil or rock.

The apparent mystery of the supply of water to Artesian wells may be easily explained. Strictly speaking, the term artesian should only be applied to water which flows above the surface of the ground.

Sometimes in a valley surrounded by higher lands there is found a porous stratum of earth or rock between impervious layers above and below it, all of which extend to and crop out on higher ground, and also extend beneath the soil of the valley. Under such conditions, the rain which falls upon the exposed surfaces of the porous stratum, sinks into it, and if this channel of water is pierced, by boring in the valley, the water will ascend in a tube, to the level of the outcrop on the surrounding hills, though sometimes the water in the porous stratum, has some other outlet at a level lower than the hill tops. The height to which such water will rise in the boring tube and in a vertical pipe placed on top of it, is the measure of the elevation of the land from which the "flowing well" receives its supply, or, in the exception before stated, it measures the level at which this water has another escape.

Common wells in which the water does not overflow, sometimes receive their supply in the same manner, but more generally they merely drain the water from the interstices of the surrounding soil.

The quantity of water which can be permanently obtained from an artesian well, is exactly measured by the area of the porous stratum which is exposed to the rainfall. The elevation to which such waters will flow, and the quantity which the well will ultimately discharge generally determines the source of its supply.

The quantity which can be permanently obtained from any common well, depends upon the cubical amount and porosity of the soil which it drains. If two or more artesian wells are sunk near a first one, in a homogenous soil and the overflow from the latter is reduced in height, or the quantity is materially lessened, it shows that the source of supply to all is not only the same, but that it is of very limited extent and probably near at hand.

The same may be said of common wells, whenever several contiguous ones have been sunk into a homogeneous soil, and a considerable quantity of water is attempted to be pumped from each well. The quantity which the first well was capable of furnishing will be successively reduced by that which is pumped from those which were afterwards dug. If we take a case similar to that which presents itself in many places in this City, where a common well has been sunk, say fifty feet deep in porous soil, through which the quantity of water pumped, will flow to a well, on a slope of one in one hundred, this well will drain an area of nearly two miles in diameter at the top, and in the form of an inverted cone of fifty feet deep.

If another well is afterwards sunk to the same depth, within the same area, the quantity of water which could have been obtained from the first well will be considerably reduced; and if several such wells are sunk within the same area, the aggregate supply attainable from all of them, will be but little more than that which was originally obtained from the first well.

On the above diagram well No. 1 was the first one sunk into a body of homogeneous soil like sandy loam.

The rainfall of previous years will have charged the soil with all of the water which it can contain, which may be assumed at one fifth. When a given quantity is being pumped from this well, the water will continue to flow to it, until the slope of the surface of the flowing water becomes say one in a hundred: that is, that the head necessary to overcome the friction caused by the earth particles, is equal to one foot in one hundred feet. The cubical contents of the inverted cone of earth of ten thousand feet diameter and fifty feet deep at the apex, is nearly four thousand millions of cubic feet of earth, which will contain eight hundred millions of cubic feet of water, or six thousand millions of gallons. If pumps be applied to this well during the two hundred and fifty days, when no rain falls, it will furnish an average daily quantity of twenty-four millions of gallons, but only for one season. After which, if no rain should fall, nó more water could be obtained from the assumed drainage content of that well.

In San Francisco the rainfall averages two feet deep, falling in the remaining one hundred and fifteen days of the year, and if the whole of this rainfall on the surface of the ten thousand feet diameter, could

The rocks which form the Diablo ranges, fifty miles to the eastward, have no porous strata between water-tight ones, and hence no artesian supply of water can come from that, or any other source eastward of this range. The dip of these rocks is so nearly vertical, that even if they held and conveyed water, borings in San Francisco would have to be made many miles deep, to reach such supposed sources of water. A supply of artesian water from the Sierra Nevada slopes is entirely cut off by the impervious barriers of the Diablo range, and no water derived from that source, could be reached by any borings made in the City.

The city itself is surrounded by impervious rock barriers on two sides, and by the salt water of the Bay on the other sides; *an artesian supply is therefore impossible from any source beyond itself.*

All of the so called, artesian wells in the City, and all others which may hereafter be bored, must, necessarily, now and forever, derive all of their water from the rain which falls upon only a portion of the before mentioned twelve square miles.

The rainfall upon this district, does not exceed an average of three feet depth a year, and in some years is less than half as much. That portion of the rain which falls upon the bare rocks, or those which are scantily covered with earth, flows off quickly to the Bay, and but little of it enters the pourous soil beneath the city. That portion which falls upon the roofs of the houses and the water-tight sidewalks and pavements, runs off rapidly in the gutters, or through the sewers to the Bay. The remainder may, for the present, be considered as having entered the porous soil through which it will slowly flow to the surrounding salt water.*

If a systematic arrangement of wells throughout the City, should be resorted to, the aggregate quantity which could be obtained therefrom can be determined with approximate exactness. There are considerable areas contiguous to the Bay and its re-entering valleys where the rainfall would run off quickly to the Bay, and would not find its way to the porous soil for the well supplies.

The roofs of the houses and the water-tight sidewalks and pavements convey the rain which falls upon them to the gutters and sewers, and would also be lost to the well supplies. And there are localities, such

*Note. All of the rain water which enters the porous earth each year, ultimately reaches the sea and generally within the current year, during which it falls.

The surface of this water contained within the earth, will be found at its maximum elevation and slope, at the end of the rainy season, and at its minimum height and grade at the end of the season of no rain.

When the annual rainfall is greater than the average of a series of years, the surface of the subterranean water, flowing to the sea, will be found on a steeper slope, and when it is less than the average, the slope will be flatter.

The discharge of this subterranean water into the sea, commences as soon as the first rains have saturated the earth nearest to the sea water, and will continue until the whole of the season's rain, which has soaked into the soil, has reached the sea.

All of the rain water which may have filled the porous earth nearest to the Bay, during the rainy season, will have flowed off early in the dry season: and then the water from those portions which are next nearest to the Bay will flow off to it a little later, and so successively until a considerable portion of the water in the porous soil over the whole water-shed will have flowed off and be lost to the daily supply for the latter end of the dry season, to the wells which it has been assumed will be dug.

be collected in its soil and none of it ran to waste, or was lost by evaporation, the subterranean reservoir of water would amount to nearly twelve hundred million gallons. In practice, however, it is found that not more than one third of the rainfall can be made available, say four hundred millions of gallons, and therefore the well in question, would thereafter, only furnish an average of a little more than a million of gallons a day for the year.

The catchment area of the water-shed above assumed, measures $2.\frac{81}{100}$ square miles, which gives an average of 383,000 gallons a day for each square mile. But the rainfall on the higher parts of the city is greater than two feet, and if it averages three feet, the above supply would be 574,500 gallons a day, from a square mile.

Returning to the diagram and the above remarks, we find that although the well in question, would give eight millions of gallons a day for two hundred and fifty days, it would never after the first eight months, give more than an average of 574,500 gallons a day for the succeeding years.

The rainfall at San Francisco was only $7.\frac{4}{10}$ inches in 1851, $10.\frac{08}{100}$ inches in 1864, $14.\frac{10}{100}$ inches in 1871; from which we may infer that there would frequently occur years, when this well would not supply an average of 300,000 gallons a day.

When well No. 2 on the diagram was sunk, say at a thousand feet from No. 1, it would cut off nearly a third of the quantity which No. 1 could originally furnish, and if a circle of wells should be sunk around No. 1 within a thousand feet distance from it, well No. 1 would not furnish an average of 20,000 gallons a day.

The lines Ca, Cb. etc., represent the slopes of the water which will successively flow to well No. 1, until it has exhausted all of the fluid which had accumulated, during many previous years, within the body of earth embraced in the area of A B diameter, by D C, the depth of the inverted cone.

The lines B, E, F, represent the area (in a vertical section) which well No. 2 will cut off from the original supply to well No. 1. The area of the cut-off on the surface of the ground by well No. 2 will be nearly one third of the whole of the original area which had previously supplied No. 1.

If we take the whole of the City to the north and east of the surrounding hills, as equal to about twelve square miles, we shall find considerable areas of rocks which are bare, and others lying beneath a soil which is compact and nearly impervious to water. These rocks and impervious earths form natural barriers to oppose any inflow of fresh water from any district beyond these hills.

The surface earth and the excavations and borings throughout the City, show that the soil which overlies the rocks, is generally porous sand or gravel, and in some places interspersed with strata of clay or mud.

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as near the cemeteries, certain manufactories and populations, where wells for a domestic supply of water would be inadmissable.

For the present purpose it is sufficient to say that all of the wells which could be sunk in the city would not furnish an aggregate permanent supply, for all time, of six millions of gallons a day, of water suitable for domestic purposes.

This assertion may be met by a reference to some wells in the city which now furnish a large quantity of water, and that if other wells should be sunk in favorable localities, the aggregate supply therefrom would exceed the quantity which has been above estimated.

The reply is, that the porous soil beneath the City has been charged to repletion, with the rainfall of a great many previous years, and if an amount of water should at any time, be drawn therefrom, greater than that which the rains will now furnish, the original stock of stored water would eventually be exhausted ; after which the supply obtainable from the wells, would be exactly measured by the proportion of the future rain water which will flow to them.

It is said that no water is lost ; even that which in its liquid form and in the juices of meat, vegetables, etc., is consumed by man and animals in a city, is more or less restored to the porous soil from which the wells must derive their supply, and by that quantity of restored water, it will be acknowledged that the above estimates of quantity are too small.

The natural repugnance of all persons to the use of such foul restored water, even when mixed in comparatively small portions with better water, will, as soon as realized, lead to measures which will convey a considerable portion of such sewage water to waste in the Bay, and ultimately, by these measures, while the City wells may be rendered less baneful, the supply therefrom will be greatly reduced. There will, however, always be enough sewage and objectionable matter admitted to such wells as to render them undesirable.

There are some mechanical and other purposes for which such waters as can be procured from wells in the city, can be used, but as soon as their true quality is generally understood they will never be used for domestic purposes.

Second.

An ample *quantity* of water for the present and future demands of the City, can be obtained from each of the sources named on page 1, except from wells within or near it.

In a report of the Chief Engineer of the Spring Valley Water Company, I find that during a period of seven years, there was collected for use in the Peninsula reservoirs of that Company, six and a seventh millions of gallons of water from each inch of rainfall on each square mile of the water-sheds of those reservoirs.

The mean rainfall during these seven years was $23.\frac{71}{100}$ inches at San Francisco, with a range between $15.\frac{21}{100}$ inches and $28.\frac{23}{100}$ inches ; and one

year (1872) of 38.$\frac{32}{100}$ inches. At San Andreas, elevated 455 feet above tide, the mean was 44.$\frac{55}{100}$ inches, with a range between 30.$\frac{52}{100}$ inches and 47.$\frac{63}{100}$ inches, and one year (1872,) of 82.$\frac{57}{100}$ inches. At the Pillarcitos, elevated 696 feet, the mean was 47.$\frac{70}{100}$ inches, and a range between 38.$\frac{88}{100}$ inches and 50.$\frac{31}{100}$ inches, and one year (1872) of 78.$\frac{28}{100}$ inches.

The water-sheds of the elevated portions of the Peninsula nearest the City, are probably six or seven hundred feet above tide, and the rainfall thereon, probably averages about four feet a year, and if it was all stored so as to bridge over the years of rainfall, which are below the mean, each square mile of the water-shed, would furnish an average of 800,000 gallons a day.

The minimum supply now required by the city, as stated on page 4, is nine million gallons daily, which would require a water-shed of 11¼ square miles. The maximum present demand would require 22½ square miles, and in a few years, the growth of the city will require the water from 45 square miles, and ultimately from 100 to 200 square miles of water-shed.

The present works of the Spring Valley Water Company, on the Peninsula, have 27½ square miles of water-shed, and with the aid of a new reservoir, which can be built when necessary, it will have the supply from 39 square miles.

The Company has also surveyed other accessible water-sheds on the Peninsula, which will increase the whole catchment, under their Peninsula system, to more than one hundred square miles.

I have personally examined the eastern slope of the Peninsula range, as far south as the proposed site of the reservoir on the north branch of the San Francisquito creek, ten miles south of the San Mateo, and find that with a dam of about a hundred feet height, a storing reservoir, capable of containing about three thousand million gallons of available water, can be obtained. The water from this reservoir can be conveyed to the proposed Cañada Raymundo reservoir, by a canal, conduit and pipes of ten miles length, including a tunnel of about a mile in length.

The area of the water-shed which this scheme will utilize, is about twenty square miles, and in conjunction with the other very large contiguous storage capacity of the Spring Valley Works, this district will furnish a large additional supply.

The problem of the storage capacity which must be provided on this part of the Pacific Coast, must be considered differently from what it would be on the Atlantic.

On the latter, the rainfall, on the average, is distributed with tolerable regularity over each month of the year, and the extremes of the annual precipitation are not so great as on the Pacific, while on the Pacific Coast all of the rains occur during four or five months, and there is no precipitation during the remainder of the year. The total annual quantity is much less, and the extremes between the years is much greater than on the Atlantic.

For these reasons, the provision for the storage of the rainfall here must be much greater, to bridge over the long period of no rain, and this must again be increased, to provide for a supply during a succession of several years of small rainfall.

The aggregate storage capacity of the reservoirs, which are now built by this company, is more than twelve thousand million gallons, and this will soon be increased by thirty-four thousand million gallons, making a total storage, comparatively near the City, of forty-six thousand million gallons.

This immense storage is more than sufficient to meet all the requirements of the case, but the plans of theCompany, contemplate the utilization of the whole storage in a manner which will presently be mentioned.

The next nearest source of supply is from the Calaveras District, on the western slopes of the Diablo Coast Range of mountains.

I have visited the site of the proposed reservoir on the Calaveras Creek, and the route of the tunnel and conduit by which the water from the district is proposed to be conveyed to the city. I have also examined the reports of Messrs. Schussler, Scowden and Mendell on this subject.

The reports show that, with a dam 183 feet in height, a reservoir with a capacity of thirty thousand million gallons would be formed. That an area of water-shed of a hundred square miles would be obtained, where the mean annual rainfall at the reservoir, is 28 inches per annum, and probably much larger on the high mountain slopes of the water-shed.

Mr. Schussler compares the character of the water-shed and the evaporation from this reservoir with those which have been tested on the Peninsula, and estimates that five and eight-tenth million gallons for each inch of rainfall, would be derived from each square mile of the water-shed of the Calaveras. This estimate gives more than sixteen thousand million gallons a year, or an average of forty-four and a half million gallons a day.

Col. Mendell, however, from some rain gauges established by him for three months, in 1877, concludes that the rainfall on the higher portions of this water-shed is not greater than at the reservoir, and says that "the product of the Calaveras water-shed cannot prudently be estimated to amount to more than thirty millions of gallons daily. * * * * * If additional storage can be provided, the daily average supply will be increased proportionately."

He bases his estimate upon a reservoir with a capacity of storage of twenty-five thousand million gallons. Mr. Schussler proposes a reservoir one-fifth larger, which would increase Col. Mendell's estimate to thirty-six thousand millions daily.

Messrs. Schussler and Scowden have proposed to increase the supply from this source when needed, by introducing into the Calaveras reservoir, the water of the Arroya Honda and Arroya Valle, creeks immediately

contiguous thereto, which, together, have one hundred and forty square miles of water-shed. With the same depth of water-fall and ratio of collection as used for the Calaveras Creek, it would furnish an additional supply of over sixty millions of gallons a day, and a total of more than a hundred million gallons daily from the whole of the Calaveras District. There are many places on these streams, which offer facilities for the construction of as large storing reservoirs as may be necessary to impound and preserve the flood waters and those of the years of plentiful rainfall. Therefore, we may conclude, that the Calaveras District is capable of affording an ample supply of water to meet the utmost demands for the City, however extensive that demand may be in the future.

I have not been able, except in a general way, to personally examine the other sources of supply, viz: from the lakes and streams on the Sierra Nevada slopes, from Clear Lake, etc., and from the San Joaquin River, but the reports of the engineers already named, demonstrate that each of them will furnish the necessary *quantity* for the present and future demands of the city.

I am therefore warranted in stating that each one of the sources of supply mentioned on page —, except that from common and deep wells in the city, may be made competent to furnish the desired quantity of water to San Francisco.

THIRD.

The THIRD general question proposed to be considered, is to determine the relative QUALITY of the water which can be procured from each of the sources before named.

It may be repeated, that all fresh water is derived primarily from the ocean, by the operation of natural distillation.

For such practical purposes as the present enquiry, the water which is precipitated from the atmosphere may be considered pure.

Water readily seizes hold of, or enters into combination with almost every substance with which it is brought in contact, and what is important in the present examination, is that it eagerly absorbs, and reluctantly parts with, those substances which render it most objectionable for domestic uses.

The impure gases from combustion, and those which arise from the vast masses of refuse, decaying vegetable and animal bodies which abound in the fouler parts of a large city, all float in the atmosphere over large populations, and are all seized upon by the falling rain water, and materially injure the quality of what would in the country, be very pure water.

When the fluid reaches the surface of the earth, it is brought into contact with the decaying vegetable and animal products, which it rapidly dissolves and incorporates, and when the rain water passes into the interstices of the earth, or porous rocks, its great solving power enables

it to decompose and incorporate the earthy and mineral matter wit which it comes in contact.

From these general statements we may obtain the relative degree purity of the water which can be obtained from each of the sever sources, without resort to chemical analysis.

The water which is obtained from wells within the City, must nece sarily contain all of the contaminations which have been enumerate viz: from the impure gases always existing in the atmosphere over th city; from absorption of the effete animal and vegetable matter, whic is so abundant on the vacant lots and grounds around the dwellings certain classes of the population; from the earthy and mineral salts i the soil; and from the leakage of stables, privies, imperfect hous drains and sewers—the most hurtful and repugnant of all contamin tions.

Water which is brought into contact with excrementary matter fro the human body, imbibes therefrom the most deadly and disgustin of all the pollutions to which it can be subjected.

The Arab, Turk, East Indian and the Chinese, only half civilize hurry such matter from sight, and deposit it where its emanating gas and germs will perform the natural functions of dissolution, witho coming into contact with any of the air or water which man is con pelled to breathe or use.

It is only among the civilized Caucassians, and in their densel populated cities, that these obviously necessary sanitary measures ar disregarded, and men, women and children are forced to drink th deadly and disgusting water obtained from wells within a city.

Many of the open privies, earth closets, water closets and leaky hous drains and sewers, discharge their contents into the adjacent soils, an the water from the next rain percolating through this filthy soil, become contaminated with it and flows on to the nearest well.

If a deep well is sunk through the upper porous soil and one or mor layers of clay, the smooth exterior surface of the iron pipes offers ready conduit to the contaminated water, which will then enter the pip at the bottom of the deepest well and poison the whole supply therefrom

I have been informed, and have observed that a great many of th sewers of the City have been very badly constructed, of loose, porou brick masonry of inadequate thickness, laid up with common mortar o very bad quality, and that these sewers leak into the adjacent soil, considerable amount of their contents. So far as this leakage occurs, i is a terrible source of corruption to any contiguous wells of water.

The enteric fevers and zymotic diseases, which prevail to so frightfu an extent in many of our American cities, have been traced directly t the use of water from wells, which have been poluted by the admixtur of sewage matter and drainage therefrom.

The chemical analysis of the waters from many of the old, long used ells in European cities, and from those formerly in use in some of the merican cities, (some of which yet continue) show how foul and cor- pt all such sources must be, under the similar conditions which, we ve endeavored to demonstrate, must exist in almost every well, shal- w or deep, to which now or hereafter a resort is had for any portion of e supply for domestic uses. *

Samples of the water from some of the so called Artesian wells, om which more or less of the supply is obtained at the larger hotels, d at other places are herewith submitted and also of the same waters, which some simple reactions have been applied, (which any gentle- an may repeat) which show some of the ingredients which are always be found mixed with all of the waters from such sources. These mple experiments confirm what has been before stated, viz: That en these deep wells, which are supposed to be the most pure which n be found, are utterly unfit for domestic uses.

Experienced analytical chemists will determine the exact quantity each of these deadly or unwholesome ingredients in these well aters, but even their best efforts, though generally successful, do metimes fail to detect those more minute germs which convey the most adly diseases to people who are compelled to use it.

It is refreshing to turn from these disgusting considerations of the ul water, which all city wells must necessarily furnish, to those com- aratively pure ones, some of which are within easy reach, and others ore remote from your City.

The geology of the Peninsula and that of the Diablo Coast Range of ountains shows that their rocks are chiefly of sandstone and slate, often etamorphosed by igneous action; and some veins of the same rocks, d also of limestone and granite, which have not been changed. herever the earth overlies these rocks, or is found in the contiguous lleys, it has been formed from their disintegration.

The character of the water which falls upon the bare rocks or their rth covering, or of that which flows over or through the soil of the hill opes and valleys, will be determined by ascertaining the character of e soluble constituents of these rocks and earths, and of the extent of e decaying vegetable and animal matter upon or within them.

The steep slopes of the water-shed will prevent the pure falling in water from contact with the rocks, and especially the metamor- nosed ones, long enough to dissolve and absorb much mineral matter om them, and in fact almost nothing that will make it unwholesome may be rendered a little harder, but not at all injurious for potations.

*Note.—By a new process the London chemists have analyzed some of the well water in that y, and determined the "germs of sewage" by the quantity of albumenoid ammonia.

These wells contained from one quarter to three parts of these "possible sewage germs" in one illion parts of the well waters.

These germs cannot be removed by filtering, as they are smaller than even blood globules, and eir vitality is not destroyed by boiling the water.

The water-sheds above referred to are covered with a scanty growth of grass, bushes, and in the ravines, of trees. The grasses and foliage of such districts decay during the midsummer, and the gases of decomposition will have been driven off before the autumnal rains commence, hence the falling rain water has but little, if any, decayed vegetable matter to come in contact with, and must flow off with almost no vegetable contamination.

Animal life even of minute and ephemeral character, cannot exist to any considerable extent, when thus deprived of vegetable food, and it is therefore to be found only in small quantity upon these water-sheds, and by its necessary death and gaseous exhalation in midsummer, cannot possibly, sensibly affect the waters which subsequently flow off from these sheds.

We then have a source of water which is comparatively free from the contaminations of the mineral and earthy salts, and from vegetable and animal effete matter, and it must therefore be pure and of the best quality for domestic purposes, indeed its quality is and must necessarily remain superior to that which is supplied to any other City within my range of observation.

This characteristic of the quality of water applies equally to that which may be derived from the elevated portions of the Peninsula, of the Coast range, and as far as two hasty trips have enabled me to judge, to the slopes of the Sierra Nevada.

Hence I can confidently state that the waters, which each of the schemes before mentioned will furnish, (except that from common and deep wells in the city), is of a suitable and excellent quality for domestic uses in San Francisco.

Fourth.

The FOURTH branch of the enquiry is, "The character and extent of the works and the comparative expense of procuring the requisite quantity of water, of a suitable character for the present and future demands of the city, from each of the feasible sources."

The time allowed for the preparation of this report, will not permit me to enter into this part of the investigation with much detail, and I shall be compelled to express myself in more general terms than I would otherwise do.

Before taking up an examination of the several schemes for an efficient supply of water to San Francisco, it may be premised, that certain parts of the work must be substantially the same, from whatever source the water is supplied. The water from each of the sources must be received in capacious, elevated reservoirs, so located that the water distributed therefrom, while able to furnish the usual nearly equal daily supply, will also be able to answer the sudden demands for the extinguishment of a large conflagration. The distribution pipes in the streets, must be of suitable size to accomplish both of these objects.

The expense of constructing distributing reservoirs and of laying down the street pipes, must therefore be substantially the same for each one of the schemes.

It remains, then, to ascertain how the water from each source can be suitably introduced to the distributing reservoirs.

Commencing with the first of the schemes herein mentioned, "the supply from common and deep wells in the City:"

A properly arranged system, would require a series of wells to be sunk where a contour line of perhaps thirty feet above the level of tide, would strike the surface of the graded streets. These wells would be placed at such distances apart, as to intercept as much as possible of the subterranean flowing waters and not materially interfere with the supply to each other.

A second series of wells, dug on a contour line of greater elevation, would probably be necessary, and in particular places, the level of the ground, the condition of the sub-soil, and other circumstances might require some intermediate wells. When these wells are within a reasonable distance of each other, one pumping engine would serve for several. Receiving reservoirs of considerable capacity, would be required to meet the unequal demands for water, during the different hours of the day and night, and those of the days of the week. Several of the pumping engines could deliver their water into the same reservoir.

It is almost evident, even without a detailed estimate, that the cost of the pumping engines, wells, force mains and reservoirs, added to the sum, the interest of which would operate the engines, would be as great for its limited supply of six million of gallons a day, as the same quantity of water could be obtained by some of the other schemes.

If the waters of Lake Merced can be freed from vegetation they would probably be rendered of good quality. The quantity which it will furnish has been variously estimated at from five to ten millions of gallons a day. It is distant eight miles from the City Hall, with its surface elevated but little above the ocean. To make use of this water, it must be pumped over ground three or four hundred feet high, and then conveyed to reservoirs for distribution.

This source would not furnish water sufficient for even the present demand, and the scheme can only be considered as an adjunct to some one of much larger supply.

The nearest source of water, of a suitable quality and in sufficient quantity to supply the present and future demands of the City, is that from the elevated lands of the Peninsula immediately south of San Francisco. The Spring Valley Water Company has developed this source of supply, so far as to demonstrate, that a minimum of more than fifteen millions of gallons a day, can be obtained from their existing works, and thirty millions, as soon as they shall have completed another of their reservoirs. These works may also be extended so as to increase the

water will be forced by pumping engines, and thence by a tunnel under the Bay to the city reservoirs and distribution, or by a conduit pipe around the head of the Bay sixty-seven miles further, and a second pumping work. The total length of this line would be 124 miles.

Another plan is to pump the water from the San Joaquin River to a reservoir at Livermore Pass, and from thence convey it around the head of the Bay to the City reservoirs by an iron conduit pipe of eighty-four miles in length.

The general features of these several schemes have been presented in as brief and succinct a manner as possible, so as to enable the expresssion of opinions upon them in a group, as compared with the two other schemes for obtaining a water supply from the nearest sources, and thus narrow the discussion of the subject as much as possible.

It has been already stated that each of these several sources will furnish water of a suitable quality and in sufficient quantity to supply the present and future demand of the City.

The foregoing description of the plans, routes, etc., for the several last mentioned schemes shows that the hazards of construction, maintenance and cost are comparatively so great, that any further detailed examination of the cost is unnecessary at the present time for the purposes stated.

These brief descriptions show that all of these schemes require much longer lines of canals, pipes, etc; that they must be carried under one or more navigable water courses, or encounter the largely additional expense of a long detour around the head of the Bay; some of them involve the untried and questionable project of a long tunnel under the deep waters of the Bay, and others the constant charge for pumping the water. In fine, that each one must necessarily be very much more expensive in construction, and more costly and hazardous in maintenance than the Peninsula and Calavaras schemes.

In regard to all of the schemes except the combined one of the Spring Valley and Calaveras, it may be stated, that to complete them, so as to furnish and properly distribute as much water as can be obtained from the Peninsula system alone, would require an outlay fully double that of the latter, and to furnish a supply equal to the combined quantity which the Peninsula and Calaveras districts are capable of furnishing, by either one of the antagonistic schemes would cost many times as much.

If we omit from this comparison the hazards attending the construction and maintenance of the necessarily long lines of iron conduits, under excessive pressure, and partly submarine, the excessive cost of these conflicting plans alone, would preclude their further consideration, in comparison with the evidently simple and practically demonstrated plans of the Spring Valley and Calaveras system.

Respectfully yours,

WM. J. McALPINE.

WHY

MODERN CREMATION

SHOULD REPLACE

EARTH-BURIAL.

AN EXPOSÉ OF THE DANGERS CAUSED BY INHUMATION

AND

AN EXPLANATION OF THE SUPERIOR MERITS OF INCINERATION UPON NEW AND SCIENTIFIC PRINCIPLES.

Contributed and Compiled by MAX LEVY, ESQ., Secretary of the San Francisco Cremation Company, under the supervision of the Board of Directors.

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CREMATION AS A SANITARY MEASURE.

Like all great and important reforms which aim at the abolishment of a custom as old and revered as the custom is of burying the dead, Cremation, as a substitute for Inhumation, until a comparatively recent date, did not find many adherents, beyond a small circle of scientists. But these, encouraged by their own conviction of the superior merit of the cause, carefully nursed and fostered the idea, and now have the satisfaction to witness its adoption by almost all the nationalities of Europe. It is rapidly gaining favor in the United States, thanks to an enlightened press, which gave and still gives encouragement and support to the advocates of Cremation.

The idea is not exactly a new one—only resuscitated—brought to life again by a better general comprehension of the laws of nature, after it had been abandoned by the Romans and Greeks, two thousand years ago. Since its resurrection, scarce a dozen years have elapsed, but we have reason to look upon the results obtained, so far, with the greatest satisfaction. The reason why Cremation has not been universally adopted yet, notwithstanding its youth, is easily explained.

While science is permitted to progress with giant strides upon ground that shows the glittering gold in its path, it is retarded when the result of its researches is bearing upon petrified superstition. Centuries passed ere the man who insisted that the sun "do move," was looked upon with ridicule or pity. But, thanks to the higher standard of education of the people of the present age, centuries cannot now pass ere another great and important truth shall be comprehended.

It is no astronomical revelation this time. It refers to the bowels of the earth rather, wherein lie deposited the dead of the human race, assigned to them for lasting rest. "For lasting rest." Alas! Some light has been thrown upon that sentiment,

sufficient for any one to see the folly of such presumption, except those who *prefer* to carry the veil of superstition, and such who find it in their interest to keep that veil in its place. But light shall and must prevail. The dead do *not* rest in their graves. It is no profanity, but the bare truth if we assert that they are running a disease factory, and mighty busy they keep at it. And when the material gives out, which might be in fifty, or might be in an hundred years, the spade again penetrates the soil and makes an end of that "everlasting rest."

It is merely a question of time, but certain it is, that our bones will be brought to the surface again. In old graveyards it occurs almost every day, that in digging new graves old ones are invaded, and the bones found there are carefully taken up, not from a feeling of reverence, though, but to be sold as a commercial article. In Egypt, it has become a regular industry to exhume the mummies and grind them to powder, in which condition they are shipped to England to be used as a fertilizer. There is no telling what a speculative people might do, after once that period has passed during which our remains are considered to be entitled to respect. And yet, in treating our subject, this is merely of secondary importance.

Sir Henry Thompson, England's celebrated scientist, asserts most emphatically, that "No dead body is ever placed in the soil without polluting the earth, the air, and the water above and about it."

If he stood alone in his opinion, we might have reason to entertain some doubt, in spite of his superior scientific attainments; but we find it confirmed by eminent physicians and men of science of nearly every part of the world. We quote the following from Dr. Wheelhouse, of Leeds, England: "We shun, and that most wisely, the presence of those afflicted with infectious diseases, so long as they remain amongst us; and yet, no sooner are they removed by death, than we are content, with tender sympathy, indeed, and most loving care, it is true (but with how much wisdom?) to lay them in the ground, that they may slowly dissipate their terribly infectious gases through the soil, and saturating that, may thereby recharge the rains of heaven as they filter through it with all their virulence and terrible power of reproduction in the system of the living. I am not the thorough and entire believer in the disinfecting and depurating power of the soil that I once

was, for terrible examples of its failure have come under my notice. Sir Henry Thompson has sounded a note of alarm on this subject; and though, for the present, it may fall upon ears unheeding or unsympathetic, I yet venture to say that, in time to come, his warning will be enforced by stern necessity, and that some better method of disposing of our dead will take the place of burial."

Every grave and every tomb—and it matters not how air-tight the corpse may have been encased—in course of time exhales poisonous gases.

Hannibal died, with a vast number of his army, of a pestilence caused by the destruction of tombs. The death of the vandals who violated the coffin of Francis I., in the French revolution, is a similar case. The London cholera, of 1854, is believed to have had its origin in the upturning of the earth where victims of the disease in 1665 were buried; and the London Board of Health, in 1849, said cholera was specially prevalent in the vicinity of graveyards.

Dr. Marble, of Cincinnati, who resided near a cemetery, says he is convinced, in the light of modern discoveries, that certain diseases in his own family had their cause in the cemetery.

Dr. Curtis, of Chicago, says: "That the dead do kill the living is only too true."

We quote from "Social Notes" of Mr. W. Cave Thomas: "Cremation insures the purity of the atmosphere and of the springs, both of which are contaminated to a frightful and incalculable extent by the present system in interment, as we shall immediately show. Data shall be given which will put the state of things resulting from this system in its most appalling light. The registered deaths in the United Kingdom for 1874 were 699,747. Taking this as an approximate annual death registry for Great Britain, and allowing ten years for the complete resolution of the body under the present mode of interment a period, it is believed, considerably below the mark—we have in the Kingdon nearly seven millions of dead bodies lying in various stages of decomposition, and giving off noxious exhalations by means of percolation to the atmosphere, and by sending down contaminating matter to the subterranean reservoirs. Calculating for London alone, there were, in 1872, 76,634 deaths; there are, therefore, at a rough estimate, nearly a million of human bodies festering in its immediate neighborhood. Fortunately for the springs, some of the cemeteries are on clayey soils, and bodies interred

in them are, to a certain extent, locked up in their clay vaults only to be a source of mischief when they are opened. Some of these graves have been described, by one who is bound to know, as 'very cesspools of human remains,' which give forth their noxious gases whenever broken into for the purpose of some fresh interment, as many a mourner has experienced to his cost. Bodies, on the other hand, which have been buried in sandy soils, are more quickly resolved, say in some six or seven years. Interments in sandy soils, however, are more likely to endanger the health of the living, for by percolation the fluids contaminate the springs, and the foul gases are exhaled into the atmosphere. * * * It would be a good bargain if we could obtain the adoption of cremation at a price of double fees."

We quote the following from the *North American Review*: "On investigating the condition of graveyards, all sentiment clustering around the tomb is quickly dispelled, and a state of things horrible in its nature and dangerous in its effects arrests our attention. These form the strongest arguments in favor of incineration, and by their force seem to indicate that those who believe in the practice of earth-burial must be ignorant of the result of the custom they advocate. * * * As high scientific authority is seldom called on to discover the origin of local diseases, unless it assumes a malignant or epidemic type, it is safe to believe that thousands of cases of illness and death are occasioned by the disinterment of human remains, without the true cause of the malady being suspected. When graveyards are dug up, who is there to look into the distant past and say: 'This man died of small-pox, pass him by; and that one of the cholera, disturb him not'? Remembering that, a few years since, the yellow fever for two successive summers ravaged the South, how strong is the presumption that the second epidemic was largely occasioned by the burial of the victims of the first. During the reign of terror that existed, men dropped like leaves, and, insecurely coffined, were hurried to shallow graves; sometimes, in the country districts, they were buried almost where they fell. And judging the future by what has been demonstrated in the past, it seems inevitable that visitations of this frightful malady will yet sweep sections of the country, caused from the disturbance of infected burial-spots, by coming generations ignorant of their contents."

The Congress of Hygiene, which met at Brussels about ten years ago, adopted a resolution which recommends an intervening

space of from four hundred to five hundred yards between a cemetery and any habitation.

When, furthermore, the facts are considered, that the International Congress, which convened in Florence in 1869, passed a resolution strongly recommending the substitution of cremation for interment, and the Royal Institute of License and Letters of Lombardy petitioned the Italian Parliament for the same purpose; when men of recognized authority, like Pettenkofer, Professor of Chemistry at the University of Munich, Professor Reinhart, of Dresden, Professor Selmi, of Mantua, Dr. Coletti, Rector of the University at Padua, Professor Brunetti, of the same University, Wegman, Ercolani, Sir Henry Thompson, Dr. Playfair, in addition to which, "The London Lancet" (Jan. 11, '79), "Contemporary Review" (Jan., '74), "The North American Review" (Sept., '82), and, with but few exceptions, the press of the United States in general, we say: If these are advocating the adoption of cremation, even if for no other than hygienic advantages, does it not behoove government and people to open their eyes?

The precaution recommended by the Congress of Hygiene, as stated, is utterly disregarded in this city. The immediate surroundings of the graveyards are occupied by dwellings supplied with water from wells which drain the soil polluted by decaying matter. Every medical man will confirm, that the status of health in the neighborhood of graveyards is considerably below the average of that of districts further off. Statistics in relation thereto might possibly be collected by the exercise of such perseverance and diplomacy found only in the reporter of some enterprising newspaper. He might begin with investigating the sanitary status of the children who visit the public school located on the Point Lobos Road, about one hundred yards from the Odd Fellows' cemetery, and similar investigations in schools of different districts, for comparison. There is no doubt about that, if the real facts could be ascertained, some astonishing revelations would come to light.

It is evident that Cremation is, first, above all, a *sanitary measure.*

We most sincerely desire that this claim may be fully understood, and therefore offer an additional substantiation in the following excellent and exhaustive paper, kindly contributed and expressly written for the San Francisco Cremation Company by an able, practical physician and eminent sanitarian of this city.

EARTH BURIAL AND CREMATION,

Considered from a Sanitary Standpoint.

By Dr. Alfred E. Regensburger.

Decaying animal matter is one of the most fertile and prolific causes of sickness and death. This may be enunciated as a sanitary maxim, and alone is a valid, good, and sufficient reason for discontinuing earth-burial, and substituting incineration for it. "Decomposing human remains," truly said Sir T. Spencer Wells, when speaking before the British Medical Association, in 1880, "so pollute air, earth, and water as to diminish the general health and the average duration of life." Cause and effect are well shown in Cairo, Egypt. A canal which is dry during a part of the year, runs through the city, into which the inhabitants throw carrion and offal of all kinds. This gives rise annually to the plague and the disease only stops when, by the overflow of the Nile, the canal is flushed and this matter carried away. Ethiopia furnishes another example. This unfortunate country sometimes suffers from an invasion of swarms of locusts, who devour everything growing in the fields, and subsequently cause the plague from the putrefaction of their dead bodies. That the dangers arising from such a cause are not exaggerated, is full well attested by the prevalence of this affection, described as the Black Death or the Great Mortality, in the fourteenth century, when it raged in Asia, Africa and Europe, costing the latter country, alone, a loss of 25,000,000 lives. The last visitation of this disease in London, in 1665, carried off 68,596 of its inhabitants—one-third of the whole number living there at that time. Applying that calculation to this city, with an estimated population of 234,520, according to the last census, would make over 78,000.

Corpses produce during the process of decomposition a great amount of carbonic acid gas. Dr. Parkes has proven that the quantity of this gas present in the air of graveyards is doubled. Physiology teaches us, that atmospheric air is composed of 21 per cent. by volume of oxygen, and of 79 per cent. by volume of nitrogen, with 1-20 per cent. of carbonic acid, and traces of ammonia, with a varying quantity of aqueous vapor, dependent upon the

temperature. When it contains 20 per cent. of carbonic acid gas, it can no longer sustain life. The deadly character of the gas is known to almost every one. Men, when cleaning a well, or before descending into any badly ventilated space, make sure that this gas is not present in too great a quantity, lest they, without taking this precaution, should lose their lives in the attempt. An increased amount of this gas in the atmosphere gives the lungs more work to perform, and after a time paralyzes, so to speak, the functions of these organs to a greater or less extent, that they are no longer able to throw off enough of it, compatible with a state of health. The result is, that the blood becomes overcharged with it, loses its normal character, and leads to impairment of nutrition, disease, and finally death. To more thoroughly illustrate, let me portray to the mind's eye of the reader the historical, and to all medical men, well-known picture of the Black Hole of Calcutta. On June 21st, 1756, at 8 o'clock in the evening, 146 persons were incarcerated in a dungeon 14 by 16 feet, having hardly any ventilation, excepting such as two very small, closely barred windows afforded. Before nine o'clock the victims were suffering from severe thirst, and a difficulty of respiration. By 11 o'clock one-third were dead. Half an hour later, one-half of the living were delirious; 6 o'clock of the next morning found only 23 alive, and of these many died afterwards of fever there contracted.

Dr. Parkes has also shown that each body decomposing in a grave gives off 50 cubic feet of this gas per year. In addition to this gas, cemeteries contain immense quantities of ill-smelling gases, carburetted and sulphuretted hydrogen, ammonia, nitrogen, and volatile organic matters diffused in their atmosphere. What a quantity of these injurious-to-health and death dealing elements of decomposition must hundreds of decaying human remains, situated in a soil which is so permeated and poisoned with them that it absorbs no more, and allows all to pass through the ground into the air above, produce, and what a percentage of the death rate must they answer for!

Affections of the digestive organs and intestinal fluxes are often tracable to the inhalation of such matters.

Certain it is, that those who live near these pestiferous places, or whose occupations call them there, are not long-lived. Grave diggers' lives are undoubtedly shortened by their calling. The

same may be said of church sextons, who are also very liable to malignant fevers from shaking the floor coverings and cleaning the floors of churches underneath which burial vaults are located. The health statistics of all large cities prove that where burial grounds are situated in the vicinity of populous neighborhods, the residents are sickly. Buck's Hygiene, p. 539, vol. 1, may be quoted to this effect: "Before interments in grounds within the city," meaning London, "were forbidden, numerous instances occurred where the public health was affected by these pestiferous spots." From the archives of the French Academy of Medicine, we learn that in the districts near Mont Parnasse, Père-la-chaise, and other cemeteries, diseases of the throat and lungs are very often met with, and are dependent upon the proximity of these places to the abodes of the living.

The specific poison of every contagious or communicable disease may originate and lurk in graveyards. Lurk—yes, lurk—for it takes a long time for the vitality of the germs of disease to be destroyed. As an instance of their longevity, Prof. Alonzo Clark, of New York, used to relate every winter to his class, how yellow fever originated in a Southern community by the opening of bureau drawers wherein the germ-laden air had been confined for over a year since the disappearance of the former epidemic which had visited that place. In 1853, an epidemic of yellow fever, then raging in New Orleans, was aggravated by opening the graves of those who had died of that affection. The opening of graves in yellow fever countries has often called forth an epidemic of this trouble.

Prof. Bianchi ascribes the reappearance of the plague in Modena, in 1828, to excavations made in the ground where many of the victims of that disease had been buried over three hundred years. In 1843, when the parish church at Winchinhampton was rebuilt, some of the superfluous soil from the cemetery was sold, and used for manure in gardens, with the result of decimating the population. The malignancy of the cholera which prevailed in London in 1854, was increased by digging sewers in the ground which had served as a burial site for those who had died of the plague which prevailed there in 1665.

Rauch, in his monograph on "Intra-mural Interments in Populous Cities," (1866), demonstrates indubitably the spread of cholera to have been due to the effluvia generated by decom-

posing bodies. In Burlington, Iowa, in 1850, no case occurred until twenty bodies had been buried, and then those who became afflicted lived in the *direction of the wind* from the cemetery.

This affection, as well as typhoid fever, and numerous other diseases, have likewise been caused by the drinking of water obtained from wells and pumps situated near cemeteries, which, upon cursory examination, had all the appearances of being good and potable, bearing out the asseveration of Sir T. Spencer Wells, that, "Water neither cloudy nor stinking, but rather inviting and popular—like the water of the Broad Street Pump in 1874—has carried cholera to those who drank it. How often typhoid fever has been caused in this way, who can tell?" Dr. Parkes, the eminent authority on public hygiene, to whom reference has already been made, found water obtained from such localities to be charged with ammonium and calcium nitrates, fatty acids, and much organic matter. Brande, and every one else whose opinion is of any value in this matter, are agreed upon the deleterious and dangerous character of such water. Whole communities may be rendered sickly by this means, as the two Italian villages of Rolondella and Bollita prove, where the inhabitants obtained their water supply from sources so contaminated. Eassie, in his excellent monongram on Cremation (p. 66)—which I recommend to the perusal of all those interested in the subject—refers to the fevers and dysentery contracted by the English soldiers in the Crimea from drinking water which was obtained from wells located in close proximity to where a number of their dead comrades had been buried.

Without going any further, the whole matter may be recapitulated in this one sentence, taken from Dr. W. H. Ford's (President of the Philadelphia Board of Health) article on soil and water, in Buck's Hygiene, viz: "The water of wells located in graveyards, or in close proximity of graveyards, should always be looked upon with suspicion, and its use prohibited."

With these facts, thus stated by the highest and best authorities upon this subject, can any one doubt the danger to the public health from this source; and can any thinking person, knowing that people do and will live near cemeteries, and have wells there, and drink the water there obtained, totally ignoring the fearful results, be unmindful of it?

Let us retrace our steps, and give a moment's attention to

cholera in this connection, as it interests us especially at this time. Whether water, earth, or air be the factor in its production, is immaterial. This city being the distributing point for merchandise and the port of entry for all persons coming from trans-Pacific countries, and in a great measure from the Atlantic coast, and being also in the direct line of travel from countries where this scourge is raging, is necessarily exposed to the same dangers that other places, similarly located, would be. Besides that, we are so situated that we are in the direction of the wind of some of our most popular cemeteries—which, in this case, is more of an element of danger than in many other places, as almost all the year long there is, on an average, more wind and more steady blowing from one direction (from the cemeteries in this instance), than in most other large cities.

Finally, our city contains a large Chinese population, estimated at 22,000 (probably more), in whose midst cholera may occur without the authorities, or these people themselves, being cognizant of the cause of death, as this community employ physicians (?) of their own nationality, persons entirely ignorant of the veriest rudiments of medical science. Not until the mischief wrought by the burial of such a body in our midst, or until, according to the prevailing Chinese custom, it is exhumed for shipment to the celestial (?) kingdom, will we become cognizant of it. This affection has, of late, been reaping its harvest in France, Italy, and Spain. In the latter country it broke out first in Granada, after the earthquakes in that city. It was clearly proven to have originated from the emanations given off from the bodies of those killed in the shocks, and buried within the city limits. From Nagasaki, Japan, news is brought of its appearance. Probably, we shall soon hear of its extension into China. No one can tell where next it will make its appearance. What guaranty have we that it will not come to San Francisco? We have had it here once already. In 1850, it was brought to this city by a vessel from Panama. The disease broke out on the 1st of October, and stopped by Christmas of the same year, after having cost the city 250 lives. It spread to Sacramento—then a city of 8,000 inhabitants—and carried off by December 1,000 of its denizens, causing a larger proportion of deaths than appears at first sight. Half of the population had fled at the approach of the scourge, leaving only 4,000 souls for it to feed upon. So the disease really killed

twenty-five per cent., or one-fourth, of the actual number of people who lived there.

Our competent and skilled health officer, Dr. Meares, significantly touches upon the subject in his last annual (1885) report. Says Dr. Meares: "It is highly probable that it" (the cholera) "will extend to other countries in Europe, and may, at any time, make its appearance in our eastern cities. If so, in spite of the most rigid quarantine regulations, it will probably visit the Pacific Coast."

On the river Ganges, in India, it is always present, whence it is often spread all over the world by travelers from that region. While it is true that the great number of Mohammedan pilgrims, who yearly, in fulfilling their religious duties, congregate there, may, by their excesses, filth and malhygienic influences, with which they are surrounded, propagate the disease, yet I venture nothing when I say that the real cause of its being endemic there is the using of that country as a burial place. Substitute incineration for it, and the disease will cease to be endemic, and be stamped out. What holds good in India, may some day do to a less extent here.

There is another danger: the bodies of persons having died of cholera asiatica, in the belief that it was cholera nostras, may be buried without extra precautions having been taken to prevent its spread, and thus be the *fons et origo* of an epidemic. It is not always possible to differentiate these two diseases from each other. Sir Guyer Hunter, at a meeting of the Medical and Surgical Society of London, held March 31st, 1885, voiced the opinion of every well-informed physician, when he remarked that there were cases wherein it is impossible to find a difference between these two affections. When Koch first announced to the medical world the discovery of his comma bacillus—said to be only present in and causing cholera asiatica—it was thought that a means of differentiation had been found, which would be infallible. This expectation was short-lived. Drs. Prior, Finkler, and others demonstrated its presence in cholera nostras. Others also found it in old cheese, sputa, etc. Mons. Ferran's inoculations in Spain with the comma bacillus miscarried; and to cap the climax, several French physicians swallowed a number of these bodies without any ill effects. Several of the European governments, recognizing the spread of cholera to have emanated from the remains of those who had succumbed to

it, have had furnaces built for the cremation of those who died of this disease. Even then—until cremation is universal—will cases of cholera asiatica, not submitted to incineration, give rise to an outbreak of this trouble.

We have seen what some of the evils of burials are; another one yet remains to be noticed. Sooner or later, in all cities, cemeteries encroach upon their limits, necessitating the removal of the buried bodies, in all stages of decomposition, in order to enable streets to be cut through, and to be used for building lots, and put to use for the living. After what has already been said, it is not necessary to dilate upon the dangers to the public health from such a procedure. It has been held that this objection to cemeteries does not apply to new countries like ours. That such is not the case, every one who lives, or has lived, in this country, knows. Already, in this city, are some of them, near, only too near to the residences of our citizens; and it will not be many years more before they will have to be removed from their present sites. History repeats itself, and will do so in this instance.

To sum up: Air, earth and water are so poisoned by the products of decomposition, emanating from buried remains of persons, many of whom labored under all forms of ills, that they are capable of harboring, generating and originating every form of disease; and, secondarily, may be the occult means of so undermining the hygienic condition of whole communities, that earth-burial should be discountenanced and forbidden by law, as being prejudicial and detrimental to the public health. The entire medical literature and the observation and experience of every physician prove such to be the case, with as great a certitude as can be attained in anything. Preventive medicine forms a Gibraltar-like, impregnable, and unconquerable bulwark of facts, militating against the continuance of this practice. With all these points scored in favor of cremation, it has no corresponding disadvantages, sanitarily, and with modern appliances, the process can be carried out so perfectly that no odors are perceptible, as the furnaces are self-condensers of evaporable matters, and nothing is noticeable which can, in the slightest degree, be offensive to the most fastidious. It is a simple, clearly sanitary mode for the disposal of the dead, completed in an hour or two at most, substituted for an unhealthy and dangerous-to-health one, which takes years for its completion.

Without any effort at elegant diction or polished periods, or any display of rhetorical pyrotechnics, as it is not our intention to appeal to the emotions, we leave the subject to the sober judgment of every fair-minded and thinking person, of whose verdict we have no doubt.

In the language of Cowper:

> "But truths, on which depends our main concern,
> That 't is our shame and misery not to learn,
> Shine by the side of every path we tread,
> With such a luster, he that runs may read."

REFINED SENTIMENT FAVORS CREMATION.

As the question, Earth burial or Cremation? presents itself to the view of any intelligent layman who has given the matter that attention which its importance demands, many interesting and telling points might be advanced in favor of cremation, not *one* in favor of earth-burial.

The latter is no more nor less than barbarism. Thoughtless people cannot recognize it as such, for the same reason that cannibals cannot recognize man-eating as equally barbarous, they having been brought up to it from earliest childhood, and their limited intelligence does not urge them on to any deviation. But the civilized descendants of cannibals, like, for instance, the natives of the Hawaiian Islands, look back with horror upon the hideous custom of their forefathers, exactly as coming generations will look upon our present custom of earth-burial.

Often it is remarked the time has not come yet for the introduction of this reform; sentiment, and religious scruples, might prove too powerful opponents. We are, however, in the position to assert: the time is ripe, and the near future will bear us out. To the sentimental, who relishes the idea that his wife and children are to visit his grave and plant flowers upon the same, we say: Beware, lest your selfishness might carry sorrow and death into your family. Your very body sends up the poison. Devotion is an excellent virtue, but do not ask it at such a price. It is possibly to cherish the memory of a loved one who's remains you have subjected to that most loathsome of all conditions: putrefaction in the grave. Would not the same feeling be inspired when the remains are reduced to their purest state, and enclosed in a beautiful urn? You assert, it would destroy all sentiment from which so much consolation is derived,—but your "graveyard-sentiment" is dangerous and false; it springs from lack of information, not to say criminal ignorance. And when false senti-

mentality can be confronted with reality, and a lesson taken therefrom, we shall present the inside of your grave to your view.

"It presents the most terrible spectacle which it is possible to conceive, whether the body within it is that of a famous statesman under a magnificent monument, or that of a pauper in a potter's field. In either case, a most foul and intolerable stench meets the daring investigator who opens the abode of peace. And however great the horror and disgust caused by the sense of smell, the impressions produced by inspection are yet more horrible. The brain, the noblest part of man, which may shortly before have furnished the wisdom that saved an empire—the brain has fallen out of its bony case, a shapeless, unctuous, stinking mass, abhorred even by the worms which so ravenously seize upon the flesh, the heart, the lungs, and especially the intestines. The eyesockets are empty, and every part, except the bones, is rotten, revolting, harrowing to the senses in the highest degree. Why, in the name of a merciful God, should we subject ourselves, and those we love, to so dreadful a condition, while science at once offers us ways and means of avoiding it, by a rapid and complete destruction of the body? Verily, the man of sensibility, animated by pious reverence for the dead, who, laying aside all illusions and self-deception, and aided at once by science and by imagination, looks into the grave, and for a moment watches the process of decay, will never again speak or think of the common mode of sepulture as the mode enjoined by respect, or inspired by affection or by tenderness for the departed."

These are the expressions of a man who occupies a prominent position in the scientific world; a man whose sacrifices for the benefit of mankind have earned for him the most enviable reputation of a philanthropist—Wegmann Ercolani, of Switzerland. Even of our own experience, we may speak of the revolting spectacle of a human body being devoured by worms. These are somewhat resembling rainworms, but of a yellowish white color—a species that sends a shudder through your body at the bare imagination that one of them might creep over your hand. The whole mass is literally surging up and down like the waves of a miniature ocean. There lies a repulsive mass of juice that once constituted the brains—that part of the human body which renders man the image of God—is partly resolving into poisonous gas and partly absorbed by the surroundings, from whence it is,

by the waters of the rain, carried through the soil, on to its mischievous errand. The same process follows with the marrow of the bones, and such other parts of the body as are not devoured by the worms; until finally, after years, there is nothing left but a heap of detached bones. Will they last till resurrection day? Possibly ours will: but the millions who have gone before us—princes and paupers, sinners and saints—their bones have crumbled to ashes by nature's process of burning in the grave, so slow, so repulsive, so devoid of any and all requisites for *creating* that reverential feeling, which has its existence by virtue of inheritance *only*. Otherwise, the custom of burial has no claim on humanity for such consideration.

True and refined sentiment is in favor of cremation. The immortal Goethe thus gives expression to it in "The Natural Daughter."

> "O, for the wise customs of the ancients, to dissolve
> The perfect, the sublime dignity of human form,
> Which nature earnestly and slowly built,
> After the spirit, the efficient, has been severed
> By the action of purest flame.
> And when the blaze ascended heavenward
> In thousand tongues, and 'midst fumes and clouds
> The eagle's wing is moving on, auguringly,
> Then tears were drying up, and the survivors'
> Unrestrained glances followed the new god
> Into Olymp's celestial space.
> O, treasure up in a most precious urn
> The dull remains of ashes and of bones,
> That these arms, in vain extended,
> May hold but something, that unto this heart,
> Which anxiously is yearning into empty space,
> I still may press what is its melancholy own."

And now, let us examine a most fitting companion to this picture (from the graveyard scene of Shakespeare's "Hamlet"):

HAMLET. Let me see. (Takes the skull.) Alas, poor Yorick! I knew him Horatio: a fellow of infinite jest, of most excellent fancy. He hath borne me on his back a thousand times; and now, how abhorred in my imagination it is! My gorge rises at it. Here hung those lips, that I have kissed I know not how oft. Where be your gibes now? your gambols? your songs? your flashes of merriment, that were wont to set the table on a roar? Not one, now, to mock your own grinning? quite chop-fallen? Now get you to my lady's chamber, and tell her: let her paint an inch thick, to this favor she must come; make her laugh at that. Prythee, Horatio, tell me one thing.

HORATIO. What's that, my lord?
HAMLET. Dost thou think Alexander looked o' this fashion i' the earth?
HORATIO. E'en so.
HAMLET. And smelt so? Pah! (Puts down the skull.)
HORATIO. E'en so, my lord.

RELIGIOUS SCRUPLES.

And now let us examine to what extent religious scruples oppose cremation. We were diligently searching for them, but what presented itself, is, compared to the general favor with which the idea of cremation is received, insignficant.

The following is taken from a letter of one of the most learned ecclesiastics of Italy, a Catholic priest, and professor of theology at the University of Pavia, Dr. A. Buccellatti, addressed to Professor Polli, at Milano:

"You enquire of me in what relation cremation stands to religion. As a reasoning Catholic, free from any prejudice, I do not hesitate for a moment to openly declare that cremation, as you and your colleagues understand it, is not inconsistent with the teachings of religion."

This declaration, coming, as it does, from a recognized authority, will, no doubt, tend to allay certain fears of a few of our Catholic brethren, who do not seem to know that the foundations of their Church reach far deeper than the grave, and her pillars of marble and granite far above the crematorium.

At the Crematorium of Gotha, Germany, a record is kept about the various denominations of those who were cremated there. That record is published in the annual report, for 1884, of the Cremation Society of Berlin, and shows the Catholic religion represented by 11 per cent. Considering that Germany is essentially a Protestant country, this is a pretty fair showing.

The clergy perform the religious rites at the Crematorium. And we trust the souls of the cremated reach the same destination that they would have reached had their bodies been subjected to the rotting process.

On the occasion of the first incineration of a dead body in the Crematorium at Gotha, the Protestant clergy were largely represented. The President of the Society was authorized to state that, by their presence, they desired to demonstrate that the process of incineration is by no means irreligious, and that they are

willing and ready to perform the religious rites at the Crematorium, as well as at the graveyard.

Dr. Wiener, chief rabbi at Oppeln, Germany, renowned for his learning and for his faith, has joined the Cremation Society of Berlin. In his letter applying for membership, he says: "I give cremation most decidedly the preference over burial under ground, and I shall endeavor to promote its adoption to the full extent of my ability."

The following is taken from an article,[1] whose author is the Rev. Dr. Bettelheim, of this city, the same gentleman who gives it as his opinion that, in the sense of the Mosaic law, it matters not how we *die*, but how we *live*.

"We read in most of the pamphlets published by crematory societies, that religious creeds are opposed to it. Probably some 'religions' are; but I can safely say that these aforementioned guides for the Israelites—orthodox or reformed—contain nothing to oppose it, but, on the contrary, point out in an approving manner the usefulness, nay, utility of cremation. The Bible (I. Sam. xxxi. 12, 13; 2 Chron. xvi. 14, xxix. 19; Amos vi. 10; Jer. xxxiv. 5, etc.) speaks clearly of the ceremony of cremation; and the phrase (I. Moses, xviii. 27) "I am but dust and ashes" can have but one meaning—that in biblical times the burning of the body was, if not generally prevalent, at least in usage. In fact, in bible times they had all modes of disposing of the body after death —embalming, and thus preserving the dead, like the Egyptians; drying it upon trees, stakes, or on dry, hot sand—another mode of preservation—like the Indians; interment in the earth, or keeping in sepulchres or caves. The Israelites, coming in contact with so many nations of the globe, adopted the usages of various countries in regard to the disposal of the dead. They could easily conform to the customs of others in this respect, for there is no command, either in the Bible or in the Talmud, as to the mode of disposition of the dead.

"An incident is related in the Talmud, of Sapor, the ruler of Palmyra. He once asked Rabbi Chama, 'In what part of the Bible is burial commanded?' and the learned Rabbi was compelled to acknowledge that there was no law of the kind in existence.

"Whilst Holy Writ expressly says (Deut. xxi. 22) "If a man

[1] Published in the *San Franciscan*, October 3, 1885.

has committed a sin worthy of death, and he be put to death, and thou hang him on a tree, his body shall not remain all night, but thou shalt surely bury him on the same day" (compare Joshua, viii. 9)—a commandment which surely expresses the highest principle of humanity—Holy Writ is nevertheless silent in regard to the dead who have given up their lives through natural causes. We know, only, that Abraham laid the body of his wife, Sarah, in a cave. The body of Jacob was carried from Egypt, and brought in a state of embalmment to the land of Canaan ; and the bones of Joseph were taken along by the Israelites, when they left Egypt on their forty years' journey.

"In biblical times, it is certain that all modes prevailed. In post-biblical time, cremation seems to have been no longer in practice. Tacitus (History, v. 5) says expressly of the Jews: *Corpora condere, quam cremare e more Egyptio*—"They now bury the body, after the manner of the Egyptians, instead of burning it"; and the Talmud, therefore, does not consider the question of cremation. Nevertheless, it is more than once mentioned, and the question as to whether the ashes of the cremated are levitically clean or not, is discussed. In Tract: Niddah, xxvi, Nazir, li, and especially Niddah, xxvii, is said, in the name of Rabbi Itzchak, that "when a corpse is cremated and the frame (skeleton) is preserved—or, rather, not destroyed by the fire—then the corpse is levitically unclean. 'Then the question is propounded, How is it possible that the flesh shall be burned, and not the frame?' The answer is, that probably the corpse was burnt on a catabla—on a marble slab.

"It would be too tiresome for the kind reader to follow me in the labyrinth of the old casuistic controversy. All that I desire to prove is, that even in Talmudical times, and in all likelihood until the fourth century of the present era, cremation still prevailed among the Jews, and therefore was not opposed either by Bible or Talmud.

"Science has shown that burning merely expedites the process of resolving the body into its original elements, speedily achieving what putrefaction accomplishes in a long time. * * * * If Almighty God chooses to resurrect a body, it can be no more difficult for him to resurrect one which has passed through the process of cremation, than a body which has been putrified in the ground, where, after many years, not the least trace of the

corpse is left, and dust becomes really dust. Dust or ashes would be alike to Him. * * * * No Jewish doctrine, inclusive of the philosophical speculation in regard to resurrection, offers any rational opposition to cremation; and the sooner it is universally adopted, the better it will be for living mankind. Public hygiene demands it; reason and science approve it. * * * * Religion should never be opposed to the welfare and health of the living world. We all claim to be progressive. Let cremation be one of the mile-stones of modern progress—it will break many links from the iron chain of superstition. When fire, and not the worm, shall disband the elements of the body in which the pure spark of God, the soul, once dwelt but no longer reigns, then more honor and respect will be rendered to the physical part of humanity by delivering it to the flames, reducing it to ashes, and preserving it in an urn, than—in the grave."

The Rev. Heber Newton advocates Cremation. He says: "Why should people adhere to interment, a custom unspeakably revolting? The dead are a standing menace. No sanitary science in our homes can save us from perpetual danger, while the homes of the dead violate the laws of nature. From our graves gases are liberated to poison the air, the fountain heads of water are tainted, and the germs of disease are turned up to the surface of the earth with every change made by the cemetery superintendent. I hope to see the introduction of Cremation."

In thus quoting the opinion of representatives of the various religious denominations, it must not be expected that our cause will receive a friendly recognition from *all*. Knowing only too well that, if Moses and Christ would come into this world, and show some of them the errors of their belief, even Moses and Christ would meet opposition fortified with proofs from the Bible and commentators.

THE PRESENT STATE OF THE CREMATION QUESTION IN THE WORLD.

For the purpose of giving the public an opportunity to judge of the progress of incineration and the importance it has assumed, we give the following brief outline of what has been collected from our correspondence and from the printed reports of various Cremation Societies, in particular those of the Cremation Society of England, which appears to be the best informed.

We will begin, however, by showing the present condition of

THE SAN FRANCISCO CREMATION COMPANY.

The movement for introducing Cremation in San Francisco was begun by a small number of our German citizens, in the year 1881. The honor of having given the first impulse thereto, is due to Mr. Frederick Schuenemann-Pott, under whose chairmanship "The First Cremation Society of San Francisco" was incorporated, Feburary 17th, 1882.[1] The German language was adopted for their proceedings and meetings; consequently, other nationalities were reluctant to join. Although the Society recruited itself from the German element only, the membership rose from 54 in 1883 to 114 in 1884, increasing up to the second quarter of 1885 to 154 members. The German language, in an English-speaking country, was justly deemed a hindrance to the progress of the cause, and therefore the English language was adopted.

Independent of the organized Cremation Society, several American gentlemen, having the same objects in view, meanwhile circulated a subscription list, for the purpose of raising the means

[1] Frederick Schuenemann-Pott, Dr. J. Bayer, J. A. Bauer, Fred. Hess, F. Roeding, Gabriel Taussig, Dr. A. Wilhelm, Ed. Wenzel and M. Mendheim constituted the first Board of Directors of "The First Cremation Society of San Francisco."

necessary for the construction of a crematorium. A union was effected, the subscriptions continued, and within a few weeks the amount of $10,000 had been subscribed by members, as well as non-members. The subscribers now constitute the "San Francisco Cremation Company," incorporated Sept. 5, 1885.

To correct a misunderstanding which seems to be general among the public, it may as well be remarked right here, that subscribers to the capital stock *are not obliged* to have their bodies cremated. By signing the subscription list, no other obligations are assumed than those of a shareholder in a stock company. They are no more under obligation to adhere to the principle of Cremation than a non-subscriber.

As it is not deemed prudent to commence operations until a larger proportion of the capital required shall have been subscribed, we appeal to the friends of this movement to consider well, how important it is to prove by *actual demonstration* the merits of the cause we advocate; as truly and beautifully expressed by one of the leading journals of this city:

"No one who has studied the subject will deny that incineration is a more decent way of disposing of the dead than our modern plan of burial. To thrust the corpse of a loved one into a dark, damp hole, in which decay, with all its loathsome accompaniments, will presently play havoc with a face and form that was tenderly cherished, is a revolting idea. Every spadeful of earth that is thrown upon the coffin is a stab in the breasts of those who mourn the deceased. The return from the graveyard without the corpse is so desolate, that it would seem that nothing could be devised to intensify more cruelly the agony of grief than this. Years and years ago intramural interments were forbidden in all European cities, for the reason that pestilences were found to spring from cemeteries surrounded by dwelling-houses. In this country cities have no walls, but the same reason has induced us to establish cemeteries at some distance from residences. But the precaution avails little. Cities grow out towards the cemeteries, and eventually surround them. People go to cemeteries in crowds — to attend funerals, to decorate graves, to pay what is regarded as a decorous token of respect for the dead. They bring away with them the seeds of death. From every plot of earth under which human forms are decaying there exudes an imperceptible malaria, which is more fatal than the night air of the

Pontine marshes or the rice swamps of the South. An irreverent doctor used to say that every funeral insured two more within a brief period.

"Incineration is a strictly scientific process, performed by the aid of an apparatus specially designed for that purpose. The body is decomposed and reduced to ashes in about one hour. It is called burning in the same sense as rotting under the ground might be called burning. It has been described as 'a bath in a rose-tinted atmosphere as fascinating to the eye as it is awe-inspiring.' It is the dream of a poet. It is performed noiselessly and reverentially. The family do not seem to desert their lost one in a damp hole in the earth. They seem to see him fade into eternity under their eyes, with a mellow splendor which robs death of half its horror. Believers have fancied that they could discern the soul winging its flight to the realms of the blessed. Even to the most hardened agnostic, the ceremony is invested with a dignity which silences the scoffer and commands reverent respect."

Even if we succeed in raising the amount of $25,000, the structure to be erected can be of but modest proportions, if it is considered that the purchase price for a suitable building lot, the cost for constructing the apparatus, inevitable expense, and some reserve fund as working capital, will very likely require one-half of it. A committee has been appointed to purchase a suitable building site, and correspondence is being carried on with patentees of the various incinerating systems, with a view of selecting the best.

A chance is therefore open to one of our public spirited citizens with means, by enlarging our limit, to create for himself a monument in the shape of a grand Crematorium, which, even in modest proportions, would be grander and nobler in its purpose than the grandest and costliest graveyard-mausoleum. The Crematorium will survive long after the vault shall have either crumbled to pieces from neglect, or been removed from necessity, or destroyed by vandalism, and will testify to the philanthropy of its founder.

Donation Fund.

Many persons, though not willing to subscribe to the capital stock, are inclined, in order to support the cause, to make a donation, the acceptance of which has heretofore been declined. The

Board of Directors have now concluded to follow the example of the Cremation Societies of England, Berlin, and others, by accepting contributions. The donation-fund will be used mainly for the purpose of enlightening the people at large so that they will understand this question thoroughly in all its bearings. To do this properly and effectually entails expense, which, if defrayed from the capital stock, might seriously diminish the fund for the construction of a Crematorium. And should that fund, either by donations or bequests, at any time assume larger proportions than required for the purpose mentioned, it will be applied to the building fund.

Donations, therefore, will now be thankfully received by the President or Secretary, or by any member of the Board of Directors.

EASTERN STATES.

Several Crematoria are in operation already in this country. In 1876, Dr. Lemoyne carried out the Cremation of Baron de Palm, though in a crudely constructed apparatus, and in 1879 his own remains were cremated in it. It is erected near Washington, Pa., where quite a number of cremations have been made since.

The second Crematorium completed in the United States was that at Lancaster, in the immediate vicinity of Philadelphia. The body of Mrs. Christiana Beseler was the first to be cremated there.

The body of Orson S. Murray was taken there shortly from Cincinnati, by the son and immediate friends of the deceased. A gentleman who was of the party, furnishes the following graphic account:

The Process of Cremation at Lancaster, Pa.

"Mr. Platt, one of the officers of the Lancaster Cremation Society took charge of the body on its arrival. It was immediately conveyed to the Crematorium, where a large number of people of all ages and sexes had congregated to witness the operation. After a short pause and conversation in the reception room, the gentlemen were led into the auditorium, which was filled with visitors from the town. The officers of both societies formed a semicircle in front of the furnace, with the son of the deceased in the center. The view presented was novel and striking. The small building, resembling in many respects a country meeting-house, built of

pressed brick, was too little for the purpose, and the heat from the furnace was intense. In front of the spectators were four doors, opening into the reception, the preparing, and the two retort rooms. Only one retort was in position, however, and the heavy iron door protecting the opening to it was about to be removed. A deathly silence prevailed.

A knock at the preparing room door was the signal to begin. The preparing table moved noiselessly into the auditorium, bearing its sacred burden, covered with a heavy dark cloth, and was wheeled into position in front of the retort. The cloth was removed, and the corpse, enveloped in a large white muslin sheet soaked in alum water, lay there but for a moment. The door of the retort swung open, and the rosy light of 2,200 degrees of heat filled the auditorium. No fire or flame was visible. Simply the incandescent light thrown by the heat from the brick tiling composing the retort was to be seen, and it like unto the picture of the setting sun on a summer evening. The iron cradle upon which lay the body was rolled from the top of the table noiselessly through the mouth of the retort, and it disappeared in the light within. The door swung to and all was over. No noise, no fire, no color, nothing of an unpleasant nature marred the operation. No dull sound of the clod upon the coffin-lid sent a shudder through the nerves of the beholder.

The auditorium was gradually vacated, and no one remained but the son of the deceased, and the officers of the two societies before mentioned. A view of the process going on behind that large iron door was to be taken. A delay of half an hour was necessary before the gases being consumed within the retort had sufficiently dispelled themselves to admit of it. Then a small opening, two inches in diameter, was made by pressing a small knob in the wall, and the incineration was to be seen. The cradle was plainly visible, and there lay the body enveloped as before, in its white sheet, to all appearances unscathed. One might have supposed it was the habitation of a human soul, so pure and heavenly was the appearance. The ghost of the gases seemed to have been dispelled, as no odor of any kind could be detected. That a dead body could be resolved into its natural elements so quickly and easily seemed strange, when one thought of the horrible processes going on daily in the burying grounds. Death had lost most of its terror. It seemed beautiful thus to pass away from materiality into vapor.

The process was nearly ended, but not entirely. The opening was closed, and the little party returned to town, to return after dark. Leaving, a view of the building was again had, and one could hardly suppose that so important an act had taken place in so modest a structure. No smoke stack, or anything indicating its use was visible. The single word Crematorium, hewn in a marble slab and placed above the iron door, told the story.

At 9 o'clock that night the party returned to the Crematorium, and a complete inspection of the building was made. Another view was had of the interior of the retort, and now all was passive light. No gaseous flames were visible. The light of the full moon could not have been milder or more beautiful. The cradle with its apparent burden was completely visible, and the body seemed to rest there, unharmed by the heat of the fire that had raged beneath the retort nearly twenty-four hours. A slight breeze would have destroyed this filmy shell of alum and muslin tissue. But none could reach it until the large iron door could be opened, which could not be done until morning. At 7 A. M. this was done, and a small heap of white ashes was visible. These were carefully removed by means of a wire brush from the bottom of the retort, and placed in a small 6 x 6-inch metal case. They were found to weigh four pounds and one ounce. Small fragments were found among the ashes, which were the remnants of the larger bones of the body, but no organic matter was there. The work was complete. By exposing the ashes to the air for a few hours, the whole assumed the appearance of white dust.

The third Crematorium was begun to be erected at Mount Olivet, Long Island, by the United States Cremation Company of New York, in November, 1884. It was to have been completed in August of the present year, at which time there were forty bodies, temporarily deposited in vaults, awaiting Cremation.

Before the building was under roof a severe storm did considerable damage, and apparently, some controversy arose between the Society and contractors, in consequence of which the completion of the structure seems to be deferred.

The most active Cremation Societies are those of Buffalo, Cincinnati, and New Orleans, from where we hope to hear next of the erection of Crematoria. Other societies have been organized in Kansas City, Davenport, Iowa, Baltimore, Philadelphia, Austin, and San Antonio, Texas. Two of the youngest are in California,

those of Los Angeles and Stockton. Evidently, the idea of Cremation has commended itself so much to the American mind, that its universal adoption in the near future cannot be doubted.

ENGLAND.

The "Cremation Society of England" was founded in January, 1874, by its members subscribing to the following declaration:

"We disapprove the present custom of burying the dead, and desire to substitute some mode which shall rapidly resolve the body into its component elements by a process which cannot offend the living, and shall render the remains innocuous. Until some better method is devised, we desire to adopt that usually known as cremation."

The Council immediately took steps to ascertain whether the performance of cremation was legally possible in this country.

The opinions of eminent counsel being such as to warrant the Council in concluding that the practice was perfectly legal, provided no nuisance was caused, the Council next obtained estimates as to the probable cost of land, buildings, and machinery, and of providing accommodation of an efficient kind. The estimates obtained ranged from £4,000 to £5,000, and a portion of this was subscribed, and a space chosen for the erection of the first crematorium on a site in the Great Northern Cemetery, with the consent of the proprietors. The Bishop of Rochester, however, wrote to the Council that he could not consent, and had no power to consent, to such a mode of disposing of the bodies of the dead, and for the time the matter remained in abeyance. Shortly after, the Council placed themselves in communication with the Government, and the correspondence which took place will be found in Sir Henry Thompson's work, and that of Sir T. Spencer Wells. Eventually the Council decided to erect a crematorium, and a freehold site was purchased at St. John's, near Woking, Surrey.

The original intention was to erect a crematorium upon the Siemens principle, but the one eventually chosen was that of the late Professor Gorini, of Lodi and Milan, and he assisted in its erection. Several cremations of the lower animals have been successfully carried out there by way of experiment, and one was

lately witnessed by the members of the Sewers Commission of London, and by some members of Parliament.

The crematorium built by the Council of the Society, near Woking, stands upon an acre of ground, is well planted, and is fenced round; but as yet no accommodation has been provided in the way of a hall or temple.

Towards the end of 1884 the Council of the Society, finding from the decision of Mr. Justice Stephen that the cremation of a body, if effected without nuisance, is perfectly legal, decided to open the crematorium.

In October, 1883, the first two modern cremations in England took place at Manston, Dorsetshire, and were described in the *Times* of October 11th, in that year, by Mr. W. Robinson, F. L. S., a member of the Executive Council of the Society. The crematorium was erected by Captain Hanham, upon his own property, and on his death his remains were also burnt in the same chamber. The apparatus which was erected for the purpose, after the designs of Mr. T. Richards, of Wiscanton, was somewhat of a temporary character, but it proved to work very well.

The crematorium belonging to the Cremation Society of England, erected by them at St. John's, Woking, Surrey, was made use of for the first time for the reduction of a human body on the 26th of March, 1885. The body upon which the rite was performed, was that of Mrs. Pickersgill, of London, aged 71, a lady well-known in literary and scientific circles; she had previously become a member of the Society, with a view of supporting the reform, in which she took great interest. The form of declaration drawn up by the Society had been signed by her, and after the medical certificates had been duly filled up by registered medical men, and an application from a representative of the deceased, the cremation was allowed to proceed. An autopsy had been previously carried out by the medical attendants of the deceased.

The body was conveyed to the crematorium from London in a suitable hearse, and the cremation, which lasted one hour, was attended by two friends of the deceased, who expressed themselves perfectly satisfied with the system employed. The cost for fuel was under 10s. altogether; and during the time of the cremation no smoke escaped from the chimney-shaft, while the ashes were of the purest white and small in volume.

ITALY.

As might be imagined, the greatest number of societies established for the promotion of cremation are to be found in Italy. This state of things is due to the foresight of the authorities who first permitted cremations to take place, and to the energetic services of Drs. Pini, Cristoforis, and others, who paved the way for a final triumph of the reform. The first society was instituted in Milan, 1876, chiefly owing to them, and the number of cremations which took place in that city alone from January 1st to December 31st, in 1884, were those of 41 males and 20 females, or 61 in all. The Societies of Lodi and Cremona were instituted in 1877, and in 1879 followed those of Udine and Rome. The year 1880 saw the birth of the Cremation Society of Varese and Padua, and in 1882 was founded that at Brescia. At all these places crematory buildings have been erected, and cremations are now performed. Besides the above societies in actual working order are those of Bologna, Modena, Venice, Florence, Turin, Parma, Verona, Pisa, Genoa, and fourteen others which have been duly constituted.

The cremation temple situated in the cemetery at Cremona was inaugurated in 1883 by the Municipal Council. The style is classical, and consists of two buildings, one being the mortuary chamber, and the other accommodating a Gorini crematory apparatus. The base of the chimney is surrounded by elegant statues.

The crematorium at Varese was erected in 1880, and although a small one, presents a handsome elevation. The chamber in which cremation is performed is placed in the center, just behind the room appropriated to the public, and which is approached through a roomy vestibule. A room has been provided where the relatives can be accommodated. At the sides of the temple are two columbaria for the reception of urns.

The cremation temple at Rome is situated at the Campo Varano Cemetery, and was commenced in 1882, the first cremation taking place in April, 1883, in presence of the Sanitary Council appointed by the Prefect. The building is somewhat of an Egyptian character, and surmounted by a pyramid which accommodates and conceals any chimney. The apparatus is of the Gorini pattern. An engraving of this building, taken from a photograph forwarded by Sir T. Spencer Wells, Bart., was given in the *Graphic* of March 29th, 1884.

GERMANY.

The first Society for the propagation of Cremation in Germany originated at Dresden, and the first Congress was held there in 1876. The exertions made by the members of the society in this city eventually triumphed, however, and resulted in the establishment at Gotha, with the permission of the authorities, of a crematorium; to the building of which the friends of the reform subscribed about £1,100, and the city authorities about £3,700. The chief society and the center of agitation in Germany is situated at Berlin, and many meetings are held there, papers read and discussed, and the chief publication, *Die Flamme*, is issued from the Prussian capital. The Cremation Society of Hamburg was founded in 1876, and numbers nearly 500 members; its activity is almost equal to that in Berlin. There are other Societies now organized in almost all the large cities of Germany, as Magdeburg, Danzig, Koenigsberg. Breslau, Cassel, Darmstadt, Dresden, Wiesbaden, etc.

The crematorium erected at Gotha is of the most imposing kind. It is the pattern which won the prize offered by the Royal Institute of Lombardy, and is the invention of Mr. Frederick Siemens, of Dresden.

Operation of the Siemens Process.

The procedure of operation in the Siemens apparatus is as follows:—The fuel is put into the gas regenerator and lighted, and when the gas is formed in the lower portion of the heating compartment, it is mixed with atmospheric air. Suitable valves are provided to regulate the inflow of the two gaseous fluids. During the process of combustion, the flame imparts the major part of its heat to the fire-bricks constituting the chamber, and the products of combustion, which are sensibly cooled by passing through the cremation chamber first, the fire-clay grating next, are carried off through the flue, after previously going through the ash-box. After the apparatus has thus been in operation for some hours, the regenerator is brought to the requisite degree of heat, and becomes of a bright red color from top to bottom. whilst the cremation chamber shows a white heat; whereupon, the operation may be commenced.

The body being placed in a coffin or otherwise, is lowered by a

suitable mechanism into the crematory chamber, which is closed from above. After allowing the apparatus to go on working for a certain time, which in point of duration depends upon the bulk of the body to be cremated, the inlets of gas are shut off, while the atmospheric air is turned on, and this air rushing into the cremation chamber, after having first been heated in the regenerator by contact with the fire-bricks which compose it, is heated up to the temperature of the bricks themselves. This air then passes into the incinerating chamber, surrounds the body, and causes a rapid and thorough combustion. It being possible to carry out the operation with a large amount of superheated air, and the upcast of the flue being very powerful, no escape of effluvia is possible except by the chimney itself. When the apparatus has been brought to the proper degree of heat, at the initial stage before the body is introduced, the entire process of reducing the body can be carried out in from sixty to seventy-five minutes. A suitable inspection opening is made in the doors, enabling the official to regulate the operation. When this operation is over, the gas and air valves are reversed, whereupon the ashes, which fall into the ash-pit of the crematorium, can be collected and urned.

The Proportion of Females Cremated.

A remarkable, and psychologically interesting feature is observed here, in regard to the steadily and rapidly increasing female proportion of the number of persons cremated. From 1878 to 1882 that proportion was 25 per cent.; in 1883, 34.7 per cent.; in 1884, 46.4 per cent.; in 1885, as far as we have the record, 76.9 per cent., or more than three-fourths of the entire number.

FRANCE.

The Cremation Society of France holds its sittings in Paris, under the presidency of M. Koechlin-Schwartz, and its supporters already amount to a considerable number. The Prefect of Police has adopted the suggestion of the Paris Municipal Council, that the remains of bodies dissected in the hospitals, and which amount annually to nearly 4,000, shall be cremated, thus relieving the overcrowded cemeteries, and effecting considerable saving in the expenses of burial. The Prefecture of the Seine has decided that the apparatus for converting remains into ashes

shall be erected in the cemetery Père la Chaise, but has not yet decided what system is to be adopted. M. Bartet, Chief Engineer of the city, who has visited the various foreign towns where cremation is practiced, recommends the use of the Gorini apparatus used at Milan. Branch Societies exist in Lyon, Marsaille and Namur.

OTHER COUNTRIES.

In Russia, Turkey, Roumania and Greece, the movement for cremation has not begun yet. But in all other European States, Cremation Societies, which are constantly growing in strength, maintain an activity that promises well for the future.

The example set by Italy has not been lost in South America, and in the Argentine Republic, in Uruguay, and in Mexico, a steady movement is on foot in its favor. In Mexico, authorization has already been granted to construct a crematorium on the Gorini pattern. In Rio de Janeiro a space of ground has been allotted, in the new cemetery there, upon which to erect a cremation temple. The Republic of Venezuela has also arranged to erect a crematorium, wherein to reduce to innocuous ashes the bodies of those who have fallen victims to yellow fever.

A society for the promotion of Cremation exists at Valparaiso, and is in communication with the Government to replace burial in the earth by cremation. The society already numbers 200 members.

In Hindostan, as is well known, cremation is practiced by millions of people, and, were it otherwise, the whole world would suffer, far more than it does, from epidemics born in this region. The arrangements there are the simplest form of pyre, and the only difference of cost lies in the class of wood employed. Many serious attempts have been made to introduce properly built crematoria, first of all, by Mr. Martin, in the year 1864, and by other persons since then; but the native mind appears to be averse to all mechanical innovation, and adheres to the primitive custom of their forefathers. The time must come, however, when the advantages of a properly constructed crematory will manifest themselves to the people, especially if one were set up by the Government, where wood fuel alone would be sufficient to ensure a perfect cremation, as is the case with the Gorini or Siemens apparatus.

In Japan, the practice of cremation was common from the earliest times, but the first recorded instance appears to be that of the renowned priest Dosho, in the year 700 A. D., whose body was burned by his disciples in accordance with his express wishes. The practice speedily spread even amongst the highest classes. A recent traveller in Japan, Mr. C. H. Wallroth, a Life Member of the Cremation Society of England, states that whilst at Kisto, he visited a crematorium situated in the near environs of the city, and that a portion of the building is reserved for funeral ceremony previous to the consignment of the body to any of the crematoria. Wooden faggots are used, and when cremation has resulted, the ashes are handed over to the relatives.

A GHASTLY POSSIBILITY.

Some of our Indians dispose of their dead by exposing them in open field, that they may be devoured by the beasts of the field and vultures of the air. This might at first thought appear cruel, heartless, barbarous, as no doubt it is; but we hold, not more so than is the custom of burial. For if it is not cruel, heartless, and barbarous to feed the worms underground with our bodies, why should it be so if the beasts of the field are given a chance. From what has been seen and experienced, we would a thousand times rather prefer the open field, if we had the choice between the two.

As incidental to this mode of exposure, it may be remarked that the corpse not unfrequently follows his followers home again. Suspended animation resembles death to such an extent that even experienced physicians are often deceived. Much more so these poor savages, who, possibly actuated from such fear, adopted this peculiar mode of disposing of their dead.

A communication sent by the Secretary, Mr. Levy, to the Sacramento *Record-Union*, and published in that paper last February, tends to demonstrate what must not be looked upon as an impossibility. We extract therefrom the following:

"Much has been said by the press, and much more by medical journals, to condemn the present mode of disposal of our dead; but thunder tones speak the harrowing news that a young lady of West Virginia had been buried alive. In the press dispatches of the 13th inst. was an account of the burial of a young woman, (Mary Cox) near Springfield, West Virginia. She was given two doses of morphia for neuralgia of the stomach; soon after her death was announced, and two days later she was buried. A lady friend at the funeral insisted that the girl was not dead, and urged that a physician be sent for. That night the dogs of a man living near the graveyard stationed themselves near the tomb and kept up a persistent howling. Next day the grave was opened, and to the horror of all it was found that the girl had been buried

alive. The lining was torn from the sides of the coffin and the pillow was in shreds. The poor girl had literally stripped the clothes from her body. Her arms and hands were torn and bleeding, her lips bitten through, and handfuls of hair were torn from her head. The girl had come to life, and evidently made a fearful struggle to escape. 'The awful affair fills the community with horror,' says the dispatch.

"If this is the possibility to which we subject our dearly beloved ones, may God have mercy on those who do not strain every nerve in their body, who do not tax their brains to their utmost capacity, to accomplish reform. If anyone supposed that burying alive happened at very great intervals only, let him examine the press dispatches of the last six weeks, where there are no less than three such cases reported from three different States. Let us, however, suppose for a moment that only one such case happened out of a million interments. The reader of this may furnish the next one out of that million, for the chances are for all alike, who are supposed to have died a natural death. But let us reflect a little more upon the scarcity of such cases. If we consider that in the above-mentioned three cases, the discovery that the persons were buried alive was made by mere accident—as, for instance, in the case of Miss Cox, where the dogs, by their superior sense of hearing, recognized the cries of the victim in the grave—it fortifies the conviction that if all the graves of a cemetery could be opened and examined, dozens of victims would be found, whose position and surroundings bear indisputable evidence of their having been buried alive. 'But,' it is often said, 'Is it not possible also that a person might be *cremated* alive?' The answer is: At a properly conducted crematorium, *no;* for the following reasons: One of the appurtenances of such a crematorium consists of a room in which a high degree of temperature is maintained. In this room the body is placed upon an apparatus that would ring an alarm at the very slightest motion of the body, and attract the attention of the watchman. The high degree of temperature serves the double purpose of tending to bring the body to life, if it is a case of suspended animation, or, if of real death, to bring about a speedy decomposition. The body remains there until unmistakable signs of decomposition make their appearance, for that is the most absolute proof of death. But if there were no such safeguard connected with a crematorium, then

we would have the choice between two evils: either of being cremated, without a chance of suffering any agony whatever, or of being buried, and then living a few hours more in the grave, only to die there the most horrible of deaths known to man. Take your choice.

"I am aware that a great many people turn with a shudder from such reading. But to ignore, is not to apply a remedy. The press, the pioneer of progress and light, ought to take this subject up with more energy than has been exhibited so far, with few exceptions; otherwise the people will be too slow to comprehend the enormity of the outrage committed against the dead and the living by burial.[1] We do not recognize ignorance upon a subject of such vast importance. * * * The results of scientific investigations make it plain that whenever a dead human body is placed underground, or in a vault, a crime is committed, not only against the present, but also against future generations. To them the present graveyards will be pestilence-breeding spots, inherited as a curse from their forefathers; for cremation will as surely be the mode of disposal of their dead, as that the earth is moving and intelligence broadening. The very monuments over the graves will then tell of the criminal blindness and prejudice of our time.

Until that age is reached, it would be well for parents to keep at least their living children away from the graveyard. It is proved by science to be a dangerous place for them as a recreation ground, or even for casual visitation. The foul air and disease germs that penetrate the entire soil cannot easily be noticed, but they are there, nevertheless, and eager to attack their little victims, and sow the seeds of diphtheria or typhoid fever. This is beyond dispute."

Subsequently, the writer of the above had his attention called to two publications bearing upon the same subject: Dr. Trusen, Surgeon-General of the Prussian Army: "Denkschrift zur Leichen-Verbrennung." (Namslau, 1858, J. Hoffmann.)

Fr. Kempner: "Denkschrift ueber die Nothwendigkeit einer gesetzlichen Einfuehrung von Leichenhäusern." (6th edition, Breslau, 1867, Korn.)

[1] Since publication the gratifying observation has been made, that an increased interest is taken in our cause by the press and the public. It is to be hoped that a practical result may be obtained.

From the following statistic notes, taken therefrom, it will be seen that the occurrence of asphyxia has been immensely underrated.

In the city of Amsterdam, during a period of 25 years, 930 cases of Asphyxia had been discovered. In the city of Hamburg, during a period of 5 years, 107 cases. The Humane Society of London, during a period of 22 years, resuscitated 2,175 persons from Asphyxia. Bruhier mentions 181 cases as follows: 52 persons actually buried alive, 4 came to life again under the dissecting knife, 53 in the coffin, and 72 under various other circumstances.

Fourteen instances are mentioned in Kempner's publication, where the statements of those having been saved correspond with each other to the effect that while in a state of suspended animation, they were fully conscious of what was going on about them, but absolutely powerless to give the least sign of life.

The members of the Society for Popular Hygiene, of Wiesbaden, are pledged to each other to employ extraordinary precautionary measures for the purpose of avoiding the dreadful possibility of being buried alive. They constitute a branch of the Cremation Society of the same place, where, as yet, no Crematorium has been erected.

The modern Crematorium is a great triumph of science. Its beneficence extends even beyond the sanitary improvement of the community, and beyond esthetic and economic considerations. The sting of death itself is subdued in its painful operation, if once we know there is at last a decent, cleanly, safe, and dignified substitute for that which thinking people hold so much in abhorrence. It was only the expression of the opinion of multitudes, when a gentleman of this city, two years ago, regretting upon his deathbed the absence of a Crematorium, exclaimed: "*Death has no horrors but the grave!*"

DISPOSAL OF THE DEAD.

From an article published in the *Contemporary Review* and copied in the *Popular Science Monthly;* by Sir Henry Thompson, professor of clinical surgery in University College, London, we make the following extracts.

After Death! The last faint breath had been noted, and another watched for so long, but in vain. The body lies there, pale and motionless, except only that the jaw sinks slowly but perceptibly. The pallor visibly increases, becomes more leaden in hue, and the profound, tranquil sleep of Death reigns where just now were life and movement. Here, then, begins the eternal rest.

Rest! no, not for an instant. Never was there greater activity than at this moment exists in that still corpse. Activity, but of a different kind to that which was before. Already a thousand changes have commenced. Forces innumerable have attacked the dead. The rapidity of the vulture, with its keen scent for animal decay, is nothing to that of Nature's ceaseless agents now at full work before us. That marvelously complex machine, but this moment the theatre of phenomena too subtile and too recondite to be comprehended; denotable only by phraseology, which stands for the unknown and incomputable—vital, because more than physical, more than chemical—is now consigned to the action of physical and chemical agencies alone. And these all operating in a direction the reverse of that which they held before death. A synthesis, then, developing the animal being. The stages of that synthesis, now, retraced, with another end, still formative, in view. Stages of decomposition, of decay, with its attended putrescence :process abhorrent to the living, who therefore desire its removal. "Bury the dead out of my sight," is the wholly natural sentiment of the survivor.

The process of decomposition affecting an animal body is one that has a disagreeable, injurious, often fatal influence on the living man, if sufficiently exposed to it. Thousands of human lives

have been cut short by the poison of slowly-decaying and often diseased animal matter. Even the putrefaction of some of the most insignificant animals has sufficed to destroy the noblest. To give an illustration which comes nearly home to some of us—the graveyard pollution of air and water alone has probably found a victim in some social circle known to more than one who may chance to read this paper. And I need hardly add, that in times of pestilence its continuance has been often due mainly to the poisonous influence of the buried victims.

Man, then, throughout all historic periods, has got rid of his dead kin after some fashion. He has either hidden the body in a cave, and closed the opening to protect its tenant from wild beasts, for the instinct of affection follows most naturally even the sadly-changed remains of our dearest relative; or, the same instinct has led him to embalm and preserve as much as may be so preservable —a delay, only, of Nature's certain work; or the body is buried beneath the earth's surface, in soil, in wood, in stone, or metal—each mode another contrivance to delay, but never to prevent, the inevitable change. Or, the body is burned, and so restored at once to its original elements, in which case Nature's work is hastened, her design anticipated, that is all. And, after burning, the ashes may be wholly or in part preserved in some receptacle, in obedience to the instinct of the survivor, referred to above. All forms of sepulture come more or less under one of these heads.[1]

One of the many social questions waiting to be solved, and which must be solved at no very remote period, is: Which of these various forms of treatment of the dead is the best for survivors?

This question may be regarded from two points of view, both possessing importance, not equally perhaps; but neither can be ignored.

a. From the point of view of Utility; as to what is best for the entire community.

b. From the point of view of Sentiment; the sentiment of affectionate memory for the deceased which is cherished by the survivor.

I assume that there is no point of view to be regarded as be-

[1] "Burial at sea" is a form of exposure, the body being rapidly devoured by marine animals.

longing to the deceased person, and that no one believes that the dead has any interest in the matter. We who live may anxiously hope—as I should hope, at least—to do no evil to survivors after death, whatever we may have done of harm to others during life. But, being deceased, I take it we can have no wishes or feelings touching this subject. What is best to be done with the dead is, then, mainly a question for the living, and to them it is one of extreme importance. When the globe was thinly-peopled, and when there were no large bodies of men living in close neighborhood, the subject was an inconsiderable one and could afford to wait, and might indeed be left for its solution to sentiment of any kind. But the rapid increase of population forces it into notice, and especially man's tendency to live in crowded cities. There is no necessity to prove, as the fact is too patent, that our present mode of treating the dead, namely, that by burial beneath the soil, is full of danger to the living. Hence intramural interment has been recently forbidden, first step in a series of reforms which must follow. At present, we who dwell in towns are able to escape much evil by selecting a portion of ground distant—in this year of grace 1873—some five or ten miles from any very populous neighborhood, and by sending our dead to be buried there—laying by poison nevertheless, it is certain, for our children's children, who will find our remains polluting their water-sources, when that now distant plot is covered, as it will be more or less closely, by human dwellings. For it can be a question of time only, when every now waste spot will be utilized for food-production or for shelter, and when some other mode of disposing of the dead than that of burial must be adopted. If therefore, burial in the soil be certainly injurious either now or in the future, has not the time already come to discuss the possibility of replacing it by a better process? We cannot too soon cease to do evil and learn to do well. Is it not, indeed, a social sin of no small magnitude to sow the seeds of disease and death broadcast, caring only to be certain that they cannot do much harm to our own generation? It may be granted, to anticipate objection, that it is quite possible that the bodies now buried may have lost most, if not all, their power of doing mischief by the time that the particular soil that they inhabit is turned up again to the sun's rays, although this is by no means certain; but it is beyond dispute that the margin of safety as to time grows narrow-

er year by year, and that pollution of wells and streams which supply the living must ere long arise wherever we bury our dead in this country. Well, then, since every buried dead body enters sooner or later into the vegetable kingdom, why should we permit it, as it does in many cases, to cause an infinity of mischief during the long process?

Let us at this point glance at the economic view of the subject, for it is not so unimportant as, unconsidered, it may appear. For it is an economic subject, whether we will it or not. No doubt a sentiment repugnant to any such view must arise in many minds, a sentiment altogether to be held in respect and sympathy. Be it so; the question remains strictly a question of prime necessity in the economic system of a crowded country. Nature will have it so, whether we like it or not. She destines the material elements of my body to enter the vegetable world, on purpose to supply another animal organism which takes my place. She wants me, and I *must* go. There is no help for it. When shall I follow—with quick obedience, or unwillingly, truant-like, traitor-like, to her and her grand design? Her capital is intended to bear good interest, and to yield quick return; all her ways prove it—"increase and multiply" is her first and constant law. Shall her riches be hid in earth to corrupt, and bear no present fruit, or be utilized without loss of time, value, and interest, for the benefit of starving survivors? Nature hides no talent in a napkin; we, her unprofitable servants only, thwart her ways and delay the consummation of her will.

What, then, is it proposed to substitute for this custom of burial? The answer is easy and simple. Do that which is done in all good work of every kind—follow Nature's indication, and do the work she does, but do it better and more rapidly. For example, in the human body she sometimes throws off a diseased portion in order to save life, by slow and clumsy efforts, it is true, and productive of much suffering; the surgeon performs the same task more rapidly and better, follows her lead, and improves on it. Nature's many agents, laden with power the overaction of which is harmful, we cannot stop; but we tame, guide, and make them our most profitable servants. So here, also, let us follow her. The naturally slow and disagreeable process of decomposition, which we have made by one mode of treatment infinitely more slow and not less repulsive, we can, by another mode of treatment,

greatly shorten, and accomplish ; without offense to the living. What in this particular matter is naturally the work of weeks or months, can be perfectly done in an hour or two.

The problem to be worked is: Given a dead body, to resolve it into carbonic acid, water, and ammonia, and the mineral elements, rapidly, safely, and not unpleasantly.

The answer may be practically supplied in a properly-constructed furnace. The gases can be driven off without offensive odor—the mineral constituents will remain in a crucible. The gases will, ere night, be consumed by plants and trees. The ashes, or any portion of them, may be preserved in a funeral-urn, or may be scattered on the fields, which latter is their righteous destination. No scents or balsams are needed, as on Greek and Roman piles, to overcome the noxious effluvia of a corpse burned in open air. Modern science is equal to the task of thus removing the dead of a great city, without instituting any form of nuisance ; none such as those we tolerate everywhere from many factories, both to air and streams. Plans for the accomplishment of this have been considered; but discussion of the subject alone is aimed at here. To treat our dead after this fashion would return millions of capital without delay to the bosom of mother Earth, who would give us back large returns at compound interest for the deposit.

And what has sentiment to urge on behalf of the present process? Let us see what the process is.

So far as I dare! for, could I paint, in its true colors, the ghastly picture of that which happens to the mortal remains of the dearest we have lost, the page would be too deeply stained for publication. I forbear, therefore, to trace the steps of the process which begins so soon and so painfully to manifest itself after that brief hour has passed, when "she lay beautiful in death." Such loveliness as that, I agree, it might be treason to destroy, could its existence be perpetuated ; and did not Nature so ruthlessly and so rapidly blight her own handiwork, in furtherance of her own grand purpose. The sentiment of the survivor, on behalf of preserving the beauty of form and expression, were it possible to do so, would, I confess, go far to neutralize the argument based on utility, powerful as it is. But a glimpse of the reality, which we achieve by burial, would annihilate, in an instant, every sentiment for continuing that process. Nay, more, it would

arouse a powerful repugnance to the horrible notion that we, too, must some day become so vile and offensive, and, it may be, so dangerous; a repugnance surmountable only through the firm belief that after death the condition of the body is a matter of utter indifference to its dead life-tenant. Surely, if we, the living, are to have sentiments, or to exercise any choice about the condition of our bodies after death, those sentiments and that choice must be in favor of a physical condition, which cannot be thought of either as repulsive in itself, or as injurious to others.

There is a source of very painful dread, as I have reason to know, little talked of, it is true, but keenly felt by many persons, at some time or another, the horror of which, to some, is inexpressible. It is the dread of premature burial; the fear lest some deep trance should be mistaken for death, and that the awakening should take place too late. Happily, such occurrences must be exceedingly rare, especially in this country, where the interval between death and burial is considerable; and the fear is almost a groundless one. Still, the conviction that such a fate is possible, which cannot be altogether denied, will always be a source of severe trial to some. With cremation, no such catastrophe could ever occur; and the completeness of a properly conducted process would render death instantaneous and painless, if by an unhappy chance any individual so circumstanced were submitted to it. But the guarantee against this danger would be doubled, since inspection of the entire body must of necessity immediately precede the act of cremation, no such inspection being possible under the present system.

In order to meet a possible objection to the substitution of cremation for burial, let me observe that the former is equally susceptible with the latter of association with religious funereal rites, if not more so. Never could the solemn and touching words, "ashes to ashes, dust to dust," be more appropriately uttered, than over a body about to be consigned to the furnace; while, with a view to metaphor, the dissipation of almost the whole body in the atmosphere, in the ethereal form of gaseous matter, is far more suggestive as a type of another and a brighter life, than the consignment of the body to the abhorred prison of the tomb.

By a series of chemical processes, it has been attempted to preserve in the corpse the appearance natural to life, as regards color and form. Admirable as the result appears to be, in preserving

anatomical and pathological specimens of the body, it is, in my opinion, very far from successful when applied to the face and hand. At best, a condition is produced which resembles a badly-colored and not well-formed waxen image. And the consciousness that this imperfect achievement is the real person, and not a likeness, so far from being calculated to enhance its value to the survivor, produces the very painful impression, as it were, of a debased original; while, moreover, it is impossible not to be aware that the substitution of such an image for the reality must, in time, replace the mental picture which exists of the once living face lighted by emotion and intelligence, of which the preserved face is wholly destitute.

To return to the process of cremation. There are still numerous considerations in its favor which might be adduced, of which I shall mention only one, namely: the opportunity it offers of escape from the ghastly but costly ceremonial which mostly awaits our remains after death. How often have the slender shares of the widow and orphan been diminished in order to testify, and so unnecessarily, their loving memory of the deceased, by display of plumes and silken scarfs about the unconscious clay! And, again, how prolific of mischief to the living is the attendance at the burial-ground, with uncovered head and damp-struck feet, in pitiless weather, at that chilling rite of sepulture! Not a few deaths have been clearly traceable to the act of offering that "last tribute of respect."

We repeat, that subscribers to the Capital Stock of the San Francisco Cremation Company *are not obliged* to adhere to or accept the principle of cremation. In fact, they are under no other obligation than is embodied in the following agreement:

TO THE DIRECTORS

—OF—

The San Francisco Cremation Company.

I.....

of...

hereby agree to take.....*shares of the capital stock of the above company, and I enclose herewith the sum of* .....*dollars, being twenty per cent. of the par value of such shares, required by law to be paid at the time of subscribing. I further agree to pay the balance of the value of such shares taken by me, in such installments, and at such times, as the directors of the company may demand*

Signed, ...

Address, ...

Date.....

[Intending subscribers may make use of this blank, cut it out, and send it to the proper address.]

Subscriptions are received at the office of General H. A. Cobb, 321 Montgomery St., and at the office of the Secretary.

Those preferring to pay the full amount of their subscription in one payment, are at liberty to do so.

Authorized to receive donations, are: The President, Secretary and the members of the Board of Directors.

THE

COMMERCE OF SAN FRANCISCO

What is Required to Revive and Stimulate the Trade of this Port with the Outside World.

BY

GEORGE W. DICKIE

SAN FRANCISCO

INDUSTRIAL PUBLISHING COMPANY
10 California Street.
1891.

INTRODUCTORY REMARKS.

IN PRESENTING the following address to the merchants, the shippers and the producers of San Francisco and California, my intention is simply to introduce the subject, and have dealt only with the main points.

Many things will occur to those interested if they study the subject in reference to their own peculiar business conditions, that are not mentioned here. But should I be fortunate enough to stir up those interested to the investigating point, my object will be accomplished.

I should be pleased to discuss the merits of the enterprise proposed in this address with reference to its advantages in connection with any line of trade, and invite the opinions of those interested.

Every line of trade has its own methods of conducting business ; its own difficulties to battle with, and unfortunately it sometimes occurs that what is life to one business is death to another. Therefore a free expression of opinion is required in order to provide a remedy for the disease that afflicts, or is at present supposed to afflict the commerce of San Francisco.

What work I have done in connection with this subject is entirely that of an individual, and for no other purpose than to give those interested the benefit of my knowledge relative to the best means of freight carrying by sea.

If the merchants and shippers are still alive, and with sufficient surplus energy to take hold of this subject in a business-like manner, this City and State will have new life infused into all its business methods.

If it is now too late to instill any life into our merchants, so long accustomed to having their commerce managed for the benefit of foreign bond-holders, then we can only dream of what under other circumstances might have been.

G. W. D.

San Francisco, December, 1891.

THE COMMERCE OF SAN FRANCISCO.

What is Required to Revive and Stimulate the Trade of this Port with the Outside World.

We have been so accustomed to hearing the enterprise of San Francisco and California lauded, and the facts relating thereto exaggerated to such an extent, that the pleasant sound of our self-blown horn has lulled us into a profound sleep.

The noise of the Traffic Association wakes us up to a realization of the fact that we have been sleeping for about twenty years, securely shut up and carefully guarded by a trans-continental staff of dry nurses, who have been very careful not to kill us outright, but to keep us in a helpless condition.

They have dosed us to such an extent as our weakened constitution—that is, our traffic—would bear without a total collapse.

There is no great city in the world, pretending to be commercial, and situated as this City is, that has not in the past ten years, made more rapid progress than San Francisco. How is it, that having such a magnificent situation on the broad waters of the Pacific, with the Golden Gate for a "front door," her merchants enter their goods at New York, haul them across the continent, and in at the "back door?"

Our merchants are in anguish because every town west of the Rocky Mountains is entered at the back door, by the common carrier, on the same or better terms, than the City by the sea. If our merchants will enter their goods by the front door, and sell at the back door we will have the western side of the United States for a customer, instead of having every town for a rival, and our Traffic Asso-

ciation can settle with the carrier for rates to all points east of the port of San Francisco.

It is my purpose to show the commercial men of San Francisco and California how to take advantage of our position as the natural entry port for all commercial products required for consumption in the states and territories west of the Rocky Mountains.

If we but glance at the commercial history of the great cities, both ancient and modern, we will find that their prosperity depended upon the completeness with which they took advantage of their position relative to water-borne commerce, making the countries and people behind them, dependent upon their favorable position relative to the ocean. It is true that great cities arose as centers of inland commerce in ancient times, as well as in modern, as ancient Palmyra, built in the middle of a desert, because there great lines of travel met. Such locations are artificial, and merely accidents of commerce, being born of the necessities of commerce. Our case is different. We are not necessary to commerce, as we see to our loss that it can go in other directions, but commerce is absolutely necessary to us. The building up and developing power of commerce is a very conspicuous factor in the history of the great centers of population. This principle helps us to understand why the earliest seats of population should be on the Euphrates, the Nile, the Ganges, and the Blue and Yellow rivers of China, and how the cradle of ancient maritime commerce should be found in communities scattered along the coasts and round the islands of the Mediterranean Sea.

Nothing is more marked in the past history of the world than the struggles of commerce to establish conditions of security and practical means of communication with distant parts. When driven from the land by restrictions and imposts it would seek for freedom and safety in the sea. If Rome was all powerful on the land, Carthage ruled on the sea. The strength of Rome was in her legions—that of Carthage in her ships, and her ships could cover ground that the legions could not reach. She stretched her commerce beyond the mystic pillars of Hercules into the Atlantic and founded the port of

Cadiz. Later, the Venetian refugees, stretching their hands over the sea, found in its fish and salt, and in the rich commerce it opened up to them, more than compensation for the fat lands and inland towns from which they had been driven, so that in the course of time, from the security of her position, and the enterprise of her merchants, Venice became practically mistress of the sea. There the first public bank was organized; there bills of exchange were first negotiated; and funded debt became transferable; there finance became a science and book-keeping an art.

Coming down to modern communities, we find the same conditions necessary to commercial success—an open door to the ocean, the common highway of nations, and enterprise to use it.

It is London's doorway to the ocean by the Thames that makes her the commercial head of England. Liverpool has become great and wealthy by making the most of her door by the Mersey; and Manchester is now spending many millions to get out at the same door, although all the wise railroad people blame her for spending her money so foolishly. Glasgow has made quite a fine front entrance out of a little river, making the Clyde famous the world over. Bonnie Dundee, on the classic Tay, from a small beginning in flax, from the adjacent Baltic, by a judicious use of its front door, has become a great emporium of flaxen and jute fabrics; and in the New World the same conditions produce the same results. New York, Boston, Philadelphia, New Orleans, are all great commercial centers, because they are careful to make a proper use of their position, entering their imports by their own front door.

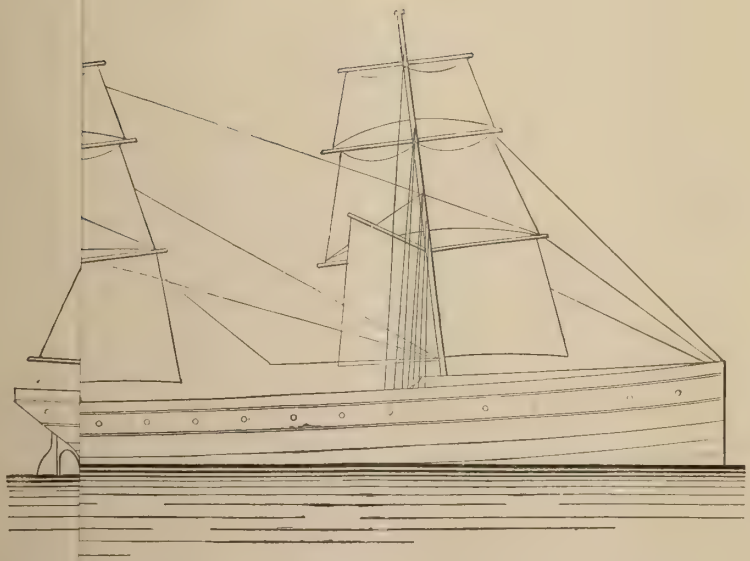
San Francisco suffers, and her commerce languishes, because she does not take advantage of her position as the natural entry port for the western side of this Great Republic. From conversation with many of her merchants, I can see that this fact is readily admitted on all sides. Now, can the existing state of things be bettered for not only our commerce, but for our manufacturers, that depend on the East, or Europe, for raw material and a market? Time is never allowed for a manufacturer to get his material by sailing vessel, so the cost of rail transportation has to be added to his estimate,

and that usually sends the work to some other manufacturing center that knows better than San Francisco how to take advantage of the situation.

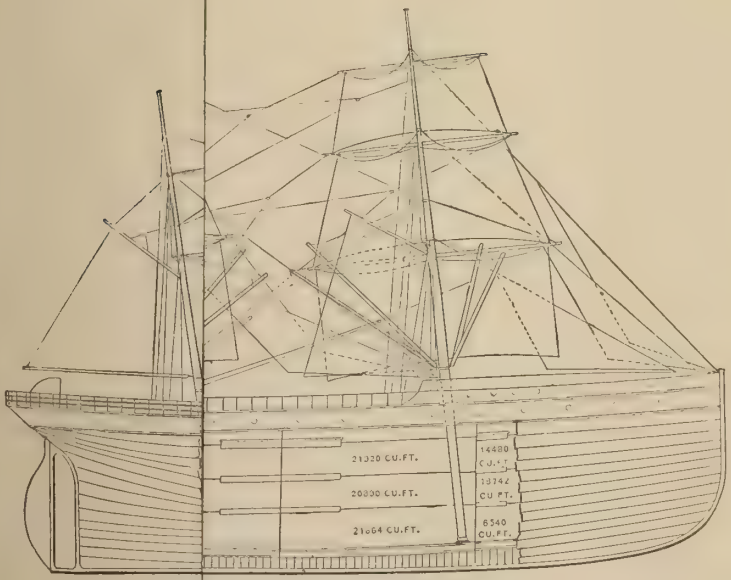
We of San Francisco must learn to benefit from the history of other countries, and seek our fortunes where so many have found theirs. Our advantages, as regards ocean transportation, are equaled by few cities in the world. Our magnificent harbor is ready made to our hand, and we only need the instruments to work out our own salvation. We want, in short, a line of steamships specially designed for the requirements of commerce between San Francisco and Liverpool, and San Francisco and New York, and as the sailing ship service between these ports has at all times commanded the service of the finest sailing ships afloat, so the new requirements of this commerce, that will give to our merchants fixed dates for sailing, and approximately fixed dates for arriving, require a line of freight steamships, whose passages will be as regular and certain as the new White Star freight steamships on the Atlantic. Transient tramp boats picked up here and there, and with no fixed time either to come or go, and with no capacity for work, will never do much toward making San Francisco the port of entry for the commerce handled by her merchants.

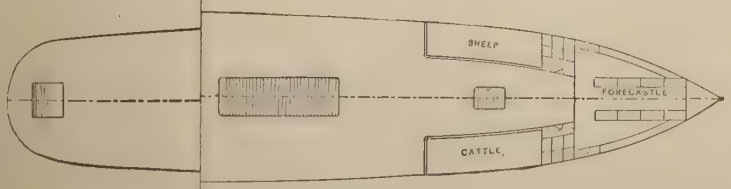
You cannot pick up second-hand tools for this kind of work. They can only be procured in one way, and that is to build them. At various times during the last ten years I have advocated the building of such a line of steamships, and discussed it in all its bearings with leading merchants, and the only argument ever used against it has been that it would simply be drawn into the great combine and either be stopped or run for some other purpose than for the good of the commerce of this port. This kind of argument simply shows how weak and timid our merchants have become under the back door system.

San Francisco, with California behind her, can build such a line of steamships, and operate them to the building up of our commerce and the benefit of their owners, and the railroads would soon learn that to carry from our wharfs and warehouses into the interior was a



IP OF THE "COUNTY LINE."





E "COUNTY LINE."

weight freight. Leaving San Francisco, drawing 26 feet 6 inches of water, the *County of Contra Costa* would arrive in New York or Liverpool drawing 23 feet 6 inches.

Our inboard profile of the *County of Contra Costa*, shows the main divisions of the holds. She would be built as a three-decked vessel, with an orlop deck, ten water-tight bulkheads; all of which would be carried to the spar deck.

Independent of the question of safety, this subdivision is necessary on account of the varied kinds of merchandise that would be carried. Produce shippers from this end could secure one compartment, and thus keep their freight separate from others. Twenty-six independent holds are thus provided. Loading or discharging can go on independently at eight hatches at the same time; double hoisting engines would be provided at each hatch, and double cargo booms for each hatch. The arrangement of hatches has determined the rig of the *County of Contra Costa* as a five-masted vessel, carrying square sails on four masts. The canvas spread will enable this vessel to take advantage of favorable winds to save fuel or cover distance, and also enable her to take care of herself in case of any accident to the machinery. An electric light plant will be provided, and a powerful search light installed on the forecastle deck; this will be of great service in going through the Straits.

It will be observed that in the design of this vessel nothing has been sacrificed for the sake of cheapness. The commerce of San Francisco requires first-class facilities. Safety and regularity are of the first importance, and must never be sacrificed. These vessels will each cost $680,000.00, and in order to have a vessel leave San Francisco on the 1st of each month for Liverpool, and one on the 15th of each month for New York, ten such vessels will be required to complete the line. The question is usually asked at this stage: Where are the ships to come from? I only know of one place that a ship can be expected to come from, and that is a ship-building yard. In other words, we must build them. But it takes a long time to build such a vessel. Yes, it will take a year to build the first one, but the others can follow at three months' intervals; and I will show

that that is as fast as the business can be got into working shape. Merchants must have time to arrange for the changes necessary in the method of doing business. A new direction must be given to trade. Merchants in interior towns must come to San Francisco to buy instead of going to New York, and it takes time to effect such changes, just as it takes time to build ships. Who would own such a line of ships and provide the means to build them? The importing merchants of San Francisco; the farmers and fruit growers of the State, and whoever else had means and wanted a good investment. How can we bring these people together? I would not seek to bring them very close together; in other words, I would have independent ownership in each vessel; the line to be operated by a managing owner, who shall own the same interest in each vessel.

Let a shipping house of high standing, well known at each end of the line, and that has the confidence of the shippers throughout the State, and the merchants of the City, act as managing owner, and start the building of the *County of Contra Costa*. The managing owner will hold ten one-hundredths; the builders of the vessel will hold ten one-hundredths; the captain to command the vessel will hold five one-hundredths. He would only be allowed to own in the ship he commands. This leaves seventy-five one-hundredths to be taken by the merchants of the City and the producers of the State. The managing owner attends to all business for a percentage of the earnings of the vessel. Each vessel of the line would have its own individual account, which would be closed up and the net profits divided at the end of each round voyage. Each owner can handle his own share as it suits him; can dispose of it as he pleases. Can insure it or carry the risk as he sees fit.

The second ship would be laid on the blocks three months after the first, and so on, until the line had reached the proportions required by the commerce of the State.

The following time schedule would show how the County Line would come into operation. A study of this, I think, will convince the merchants and producers that such a line can be brought into operation as fast as the changes in business can be brought about:

TIME SCHEDULE

"COUNTY" LINE OF STEAMSHIPS

FROM

SAN FRANCISCO TO LIVERPOOL AND NEW YORK.

TIME SCHEDULE CONTINUED.

County of	Colusa	Oct. 1, 1894	Nov. 19, 1894	Dec. 15, 1894		Feb. 3, 1895	
"	Sacramento	Oct. 15 "	Dec. 4, 1894	Jan. 1, 1895	Feb. 19	"	
"	Fresno	Nov. 1 "	Dec. 20 "	Jan. 15, 1895		Mar. 6	"
"	Los Angeles	Dec. 1 "	Jan. 19, 1895	Feb. 15 "		Apr. 6	"
"	Santa Clara	Dec. 15 "	Feb. 3, 1895	Mar. 1 "		Apr. 19	"
"	Solano	Jan. 1, 1895	Feb. 19 "	Mar. 15 "		May 4	"
"	San Joaquin	Jan. 15 "	Mar. 6 "	Apr. 1 "		May 19	"
"	Tulare	Feb. 1 "	Mar. 22 "	Apr. 15 "		June 4	"
"	Contra Costa	Feb. 15 "	Apr. 6 "	May 1 "		June 19	"
"	Colusa	Mar. 1 "	Apr. 19 "	May 15 "		July 4	"
"	Sacramento	Mar. 15 "	May 4 "	June 1 "		July 20	"
"	Yolo	Apr. 1 "	May 20 "	June 15 "		Aug. 4	"
"	Fresno	Apr. 15 "	June 4 "	July 1 "		Aug. 19	"
"	Los Angeles	May 1 "	June 19 "	July 15 "		Sep. 3	"
"	Santa Clara	May 15 "	July 4 "	Aug. 1 "		Sep. 19	"
"	Solano	June 1 "	July 20 "	Aug. 15 "		Oct. 4	"
"	San Joaquin	June 15 "	Aug. 4 "	Sept. 1 "		Oct. 20	"
"	Tulare	July 1 "	Aug. 19 "	Sep. 15 "		Nov. 4	"
"	Contra Costa	July 15 "	Sept. 3 "	Oct. 1 "		Nov. 19	"
"	Colusa	Aug. 1 "	Sep. 19 "	Oct. 15 "		Dec. 4	"
"	Sacramento	Aug. 15 "	Oct. 4 "	Nov. 1 "		Dec. 20	"
"	Yolo	Sept. 1 "	Oct. 20 "	Nov. 15 "		Jan. 4, 1896	
"	Fresno	Sep. 15 "	Nov. 4 "	Dec. 1 "		Jan. 19	"
"	Los Angeles	Oct. 1 "	Nov. 19 "	Dec. 15 "		Feb. 3	"
"	Santa Clara	Oct. 15 "	Dec. 4 "	Jan. 1, 1896		Feb. 19	"
"	Solano	Nov. 1 "	Dec. 20 "	Jan. 15, 1896		Mar. 5	"
"	San Joaquin	Nov. 15 "	Jan. 4, 1896	Feb. 1 "		Mar. 21	"
"	Tulare	Dec. 1 "	Jan. 19, 1896	Feb. 15 "		Apr. 5	"
"	Contra Costa	Dec. 15 "	Feb. 3 "	Mar. 1 "		Apr. 19	"

per long ton (I am sure that is below the most sanguine hopes of our merchants and producers), that will give a gross revenue for the five months of $120,000. Deducting operating expenses, there is left a net revenue to be divided among the owners of $68,674, or 10 per cent. dividend for five months—24 per cent. per annum. To owners that insure, there would still be left from 18 to 19 per cent. per annum.

I have endeavored to place this proposal in a simple form before the merchants of San Francisco and the producers of the State. I have studied the question for years; discussed it with the most intelligent shipping men here and elsewhere. It is in opposition to no railroads, in fact, I would consider it the greatest factor in building up the railroads, radiating in all directions from this City as the center of commerce, and natural emporium of the West.

There is nothing to prevent our merchants and producers from establishing such a line of steamships, and they can all be built here, and in time to take their places in the line as indicated in our time schedule, and when they are all completed, as a community we will be richer, as we will have the ships and the money with which they were built as well.

If a canal is ever completed through the attenuated waist of this continent, the first ship to pass through should be one of the "County Line," representing the commerce of San Francisco.

Now seems a favorable time to begin such an enterprise. Is it natural for the merchants of our interior towns to go to New York or Philadelphia to buy imported goods, and haul them across the continent on a railway, with San Francisco and her fine harbor so near? What advantage in time for goods shipped from Europe over the Atlantic by steamer and across the continent by rail, is there over shipping by steamer direct with a time schedule of 50 days, and fixed days for sailing? The gain in time is very slight, if any, while the cost is very much greater, and freight by the steamship line has the advantage of being handled only once.

It is needless for me to expand this subject further. Each merchant can figure out what advantages such a line of steamships

The next question, and a very important one, is: What will the operating expenses be, and how will the revenue compare with expenses? To estimate this, I will take the first voyage of the *County of Contra Costa*. By reference to our time schedule it will be observed that this vessel leaves San Francisco on the 1st of January, 1893, and leaves again on her second voyage on the first of June: that is, five months for the round voyage. Expense will be:

1,600 tons of coal, at $8.00	$ 12,800 00
1,600 " " " 4.00	6,400 00
CREW OF FIFTY, ALL TOLD.	
Captain (5 months)	1,000 00
Chief engineer (5 months)	750 00
First mate (5 months)	500 00
Second and third mates (5 months)	600 09
" " engineers 5 months	825 00
Four quarter masters (5 months)	900 00
Twelve seamen "	1,800 00
Two cooks and one steward (5 months)	625 00
Eight apprentices "	600 00
Six oilers and water tenders "	1,350 00
Nine firemen "	1,800 00
One storekeeper "	225 00
Provisions for fifty hands, 151 days at 42 cents	3,171 00
Port charges at Liverpool, including going in dry dock	5,800 00
Port charges in San Francisco	3,000 00
Five months' supply of paints, oils, waste, hardware, etc	1,480 00
Ship chandlery bills	900 00
Machine shop bills	1,600 00
Managing owners' percentage	3,600 00
Advertising and stationary	600 00
Incidentals	1,000 00
Total expense	$51,326 00

In regard to the revenue, we have seen that the *County of Contra Costa* has ample room for 10,000 tons measured goods, and that her dead weight carrying capacity is 6,200 tons of cargo. I think that it would be quite safe to assume that the average number of tons each way would never be less than 6,000. Now, as to the average rate of freight per ton. Some classes of freight would be carried for less than $10 per long ton, but a large proportion would be over that rate, and for a short ton, which would increase the amount carried by 600 or 700 tons. If we take an average of $10

per long ton (I am sure that is below the most sanguine hopes of our merchants and producers), that will give a gross revenue for the five months of $120,000. Deducting operating expenses, there is left a net revenue to be divided among the owners of $68,674, or 10 per cent. dividend for five months—24 per cent. per annum. To owners that insure, there would still be left from 18 to 19 per cent. per annum.

I have endeavored to place this proposal in a simple form before the merchants of San Francisco and the producers of the State. I have studied the question for years; discussed it with the most intelligent shipping men here and elsewhere. It is in opposition to no railroads, in fact, I would consider it the greatest factor in building up the railroads, radiating in all directions from this City as the center of commerce, and natural emporium of the West.

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It is needless for me to expand this subject further. Each merchant can figure out what advantages such a line of steamships

would give him, with a time schedule and freight rates as indicated, over his present condition.

The conditions of all are not alike. But, if such an enterprise, honestly managed, would not give an immense impetus to the commerce of California, we have been greatly deceived as to the causes that have retarded our progress.

G. W. DICKIE.

17

REPORT

OF THE

GRAND JURY

OF THE

City and County of San Francisco,

ALSO

Judge Wallace's Charge and his Address on Receiving the Grand Jury's Report.
Letter of Ex-Chief Justice John Currey.

SAN FRANCISCO:
THE S. CARSON COMPANY, 208 POST STREET.
1892.

MEMBERS OF THE GRAND JURY,

1891.

BARCLAY HENLEY, *Foreman*	101 Sansome Street
IRVINE GRAHAM, *Secretary*	201 Front Street
J. H. MUNDY	18 Front Street
JAMES M. McDONALD	310 Pine Street
DR. C. D. CLEVELAND	600 Leavenworth Street
W. S. ZEILIN	859 Market Street
JAMES DENMAN	2101 Webster Street
P. J. KENNEDY	630 Market Street
REUBEN TUCKER	413 Washington Street
WM. CLUFF	18 and 20 Front Street
GEO. H. WALKER	516 Kearny Street
WM. M. CUBERY	587 Mission Street
HENRY L. DODGE	114 Market Street
CHARLES HOLBROOK	Market and Beale Streets
MARK SHELDON	4 Sutter Street
JOHN A. LENNON	315 Clay Street
LIPPMANN SACHS	33 Sansome Street
C. W. McAFEE	10 Montgomery Street
JEREMIAH LYNCH	1302 Leavenworth Street

REPORT OF THE GRAND JURY.

To the Hon. W. T. Wallace, Presiding Judge of the Superior Court of San Francisco:

This body was assembled and sworn by the Court as a Grand Jury on August 20, 1891. It begun work at once, appointed sub-committees, and arranged for frequent sessions. Very soon thereafter Stephen T. Gage, one of the directors of the Southern Pacific Railway, and Richard Chute, a salaried employe of the same company, declined to obey the subpœna of the Grand Jury.

Their attorneys asserted that we were not a legal body exercising official authority, and when brought before his court, Judge Murphy sustained this view.

By other processes the question was carried to the Supreme Court, and Creed Haymond, general solicitor of the Southern Pacific Railway, attacked the validity of the Grand Jury before that tribunal.

The Supreme Court, after some days' deliberation, decided that we could subpœna and compel the attendance of witnesses. But these harassing delays consumed a month or more, and in the interval we could do very little as it was thought proper to be sure that we had the rightful power before it was exercised with necessary firmness. Then came a period of about six weeks without other legal checks or impediments. During this time we were free to delve into the arcana of rascality and dishonesty that fronted us everywhere. We made all efforts to fulfill our duty, and heard many witnesses. We collected an immense quantity of evidence tending to show venality and money taking by various officials both municipal and legislative.

We found that agents and brokers, who were fully recognized as such, went freely to persons interested in legislation and agreed to defeat or pass measures.

Many persons other than those in office were implicated, and we began to wonder to what heights our researches would lead us. A number of men, presidents and directors of corporations, who had paid moneys either direct or through agents and brokers, had consented to make a full and unreserved confession in case we were adjudged by the highest legal tribunal in the State a lawful Grand Jury.

These people may be deemed by some moralists more culpable than those to whom were paid the price of dishonor, upon the principle that if there was no booty there would be no thieves. The corporation owners defend the payment of this tribute in saying that the legislators and supervisors are highway robbers who have to be bribed; for otherwise, by adverse enactments they threaten the destruction of the financial interests involved. But in some instances these financial interests have been obtained in an improper manner, and a just enforcement of the statutes would cause the forfeiture of the acquired privileges.

And if it be not so, who shall say these corporations are justified? What remedy can cure the injury to patriotism and free government that makes worthless rascals out of men who would have been perchance honest if they had not been tempted? Not even our vacuous laws admit any difference between the buyer and seller of men's consciences.

Neither by law nor by that abstract sentiment of what is fair and right to man and man, an ideal older than history and beginning with Cain and Abel, is the tempter better than the tempted.

The millionaire sitting in his luxurious office rotund with the wealth filched from the public coffers by unclean franchises, may hold up his jeweled hands and say, "Preserve me from these bandits" But is he less culpable than the poor devil of a senator or assemblyman that has incurred debts during his candidacy which he is unable to pay? Who finds himself for the nonce lifted to a position which he knows is evanescent, and is tempted by wines, banquets and money?

They are all alike guilty and criminal. But be that as it may, the tongues of these corporation owners for the present are silenced. For there came again legal intervention to thwart the Grand Jury.

Second Judicial Interference.

A member of the Assembly, whom we had indicted for felonious practices, appealed to the Supreme Court. The appeal was successful; since after another month's delay, the Supreme Court has declared this Grand Jury an "illegal precedent," to which decree we must perforce accede.

Judge Rhodes and District Attorney Barnes were of our counsel, and the former delivered an admirable and impressive argument in favor of the law, the right and truth. But by four members to three the court has dismissed us just when we were on the eve of turning up the mass of filth that reeks and swells through the length and breadth of our fair land and exposing it to the sunlight of honor and decency.

It was Aristotle who wrote: "Where there is no confidence in the lawgiver, there can be no virtue in the law." That apothegm cannot perhaps be applied to this body, for it has been elected of the people, and therefore they must be assumed to be righteous judges and honorable men. But we regret that the law, as interpreted by the majority of the Court, has been construed to protect and not to punish the criminal classes. It may be an "illegal precedent" to permit this Grand Jury to exist, for so says the Court. But it was an "illegal precedent" when Brutus killed Tarquin, when Parliament beheaded Charles I, and when Jefferson wrote the Declaration of Independence, and doubtless Jefferson would have been carefully hanged for that same "illegal precedent" if the Revolution had not succeeded.

Be this as it may, the dictum cannot now be changed and we must perforce end our scarce commenced labors.

The Senate.

In the last Legislature a number of the Senators associated together as a compact band of mercenaries. A finance committee of three appears to have been appointed from the rest with authority to contract for the votes of all the band. The Senators were also represented by agents or brokers, who co-operated with the committee. The Senators' votes were cast for or against various measures with strict unanimity and distinct impartiality. The highest bidder, after due admonition to others, secured the chattels, and but one instance is known where the contract once agreed was not faithfully kept. It is true that in that case the other side eventually bid more, which, we submit, is an extenuating circumstance not without its merits.

The Senate comprises in all forty members, but though that number is suggestive we have not been able to discern clearly Ali Baba.

The band entrusted all power to the finance committee and were co equal. There were, of course, Senators who are as pure as the snow-white spray on the waves; but alas! the good were overborne by the bad. A majority of the Senate comprised the Combine, and the amount received by each approximated $7,000.

The Assembly.

Those members of the Assembly intent upon like thrift do not appear to have been organized under the same strict military discipline. We regret to observe that the statements made in this report as to the amount of plunder received by their brethren in the Upper House may be to them a most painful revelation. They must deplore that lack of experience which placed them at the mercy of a few veteran rogues in their body, who reaped all the advantages that superior intellect admits. For there were no middle men, no agents, no brokers, to tempt the assembly neophytes. Bribes were paid direct to the Heaven appointed captains, and they settled with the baser sort without the intervention of outside interlopers. Therefore we cannot state the sums paid the Assembly bandits with specific accuracy. We may only note, that the captains received more and the privates less in the Assembly than the average $7,000 paid to the members of the Senatorial Combine.

Be it fully understood that in all this shameful traffic of men in official station, was there no politics. These men were neither Republicans, Democrats nor Americans. They were simply thieves, and Boodle knows no partisanship. Their turpitude was frank and open. Every person who appeared at Sacramento supposed to be connected with some pending Bill, was assailed at once by these men and their agents and brokers. There was small pretense of secrecy. The price paid for votes was known to lobbyists and hangers-on, and discussed in bar-rooms and hotel corridors. A few of the legislators discovered that they were deceived, in that others were paid more than themselves on certain occasions, contrary to the compact and also the finance committee's asseverations. Hence arose at times unseemly jarrings and untimely discussions until the very shreds of their infamous bargain were spread flaunting over the glorious Capitol, obscuring the American flag in utter shame and degradation.

And this Grand Jury solemnly avers its belief that, if the Supreme Court had not declared it an "illegal precedent," it would have initiated such measures as would have resulted in the permanent abatement of this evil which seems to threaten the very existence of a republican form of government.

For us to comment on this statement of facts is needless. Let every American who has been taught to believe that our form of government is the truest, the wisest and the most humane, solve the riddle for himself. For what right have we to say that these men are viler than ourselves? We elected them, or by our indifference made their election possible. We chose them to make and alter the laws. We selected them to exercise the attribute of government in a legislative capacity.

It is true, as may be said, that the last legislature was worse than any of its predecessors. But what then? May not the next be yet more degraded? What have citizens done, or what do they purpose to do that these wrongs may be righted? This body can only diagnose the disease. The creation of this Grand Jury was an earnest effort to test the omnipotence of corruption; the law, as interpreted by the highest State tribunal, seems to be inadequate to sustain the effort, but the contest must be continued for otherwise virtuous society cannot exist.

Supervisors.

The Board of Supervisors of the City and County are endowed with extensive and autocratic powers. They have authority to regulate annually the price of gas and water. To pass ordinances limiting or extending the lines of city railways, either horse, cable or electric. And this right they possess to such a degree that even if the State Legislature enacts a law providing in effect that electric street companies may incorporate and do business in San Francisco, the State Act is lifeless

among the Board of Supervisors to give to the majority of subjects for patronage to the home people. To appoint friends for purposes of political duty some of the city officials and place on those already occupied for that purpose. To authorize unnecessary work to be done in extravagant fashion, which may be entrusted to supporters of those officials. To appoint watchers and officers who work, with considerable opportunity for persons, all of whom are paid from the city treasury.

The Boards of Supervisors have employed, or part or least, of late years, many employees, and the abuses which have accompanied the last Board of Supervisors, the majority of whom were popularly denominated the "Solid nine," is too well known to be repeated in the case of any member to need extended mention at our hands. Personal favors purchasing to most of the Board, merely declined, could not from corporations, the penalty of refusal being a threat of adverse law or ordinance, and after a decade or so of that Board very often would be confined to do as the very lowest of municipal criminals. And if a franchise or privilege or any kind was sought through the legislative functions of the Board, they demanded and received tribute for their votes as regularly as would the street lights have the purchase thereof. A majority of the present Board is understood to be the latter, and we have not been permitted to investigate its alleged delinquencies.

The punishment of an long and numerous that the most popular and the most notorious be found at all. It is simply an organized system of blackmail, and all those connections have already acquiesced, and only wait the question if there would be anything them to do to be anything, for they judge that the Boards and Juries would have convicted them one and all if they "squealed."

In many cases of the United States Senators seem to be inactive in the matter of the police problem. Here we receive the order, and what would be the city police purchase the other hands.

The Mayor is helpless. He can do nothing. He is only a chief clerk. He has the appointment of the patrolmen of 3 and not more. Like Presidents, bound to the rock of the Constitution, we see them witness enacting the whole of the city and can only act against the revolting deed.

The Mayors of San Francisco have been generally reputable men. But could they have stopped the large scale of corruption? Investigate a the order of things, to determine if we will show that one is to daily official and social contact. What, then, is the remedy?

It is in a word that the governing charter all enlarged powers to the Mayor, and for the removal of which he would be deemed responsible. He ought to be really, as he is nominally, the Head of the City Government. He should have the appointment of all subordinate officers without election or any control on the Board of Supervisors. He should have also the appointment of Police, Fire and Fire Commissioners. But the Mayor's office should be subject to the Boards of Supervisors for legislation, and to the executive from the Franchise and Governor board, to granted the power and the right to appeal, while the legislature in certain cases would have. It is the reason and system of our republic and should apply as well to cities and states and the federal authority at Washington. It is better to trust one man than twelve, and we can always get a superior person for the Mayoralty. Some of the best businessmen should not be now voting in the Legislature, but the policy should be considered by the Mayor for that and City and the State alone, and there is no reason why the State Legislature should settle any question originating in the interests of San Francisco, should that in those of Los Angeles or Oakland.

Bad Revenue

We may add that that of the Grand Jury had continued its labors additional investigations would have been found against some of those already indicted.

One of the features of a corporation found in the city testified that the company paid for about five years up to the end of last

year a monthly stipend averaging say $400 per month, and that in addition his concern had to pay various sums on the eve of elections, in one instance as much as $8000 to the same person. It is understood that other corporations were under tribute in like manner, so that this person's annual revenue from that source alone may have aggregated $100,000 annually.

It also appears that from a large number, probably reaching up into the hundreds of the employees of this municipality, was and is collected a certain percentage of their monthly salaries, which added to whatever revenue be derived from legislative vice, will afford the thoughtful reader some idea of the enormous pecuniary gains that enures to the benefit of the political bosses.

Education.

The teachers, with few exceptions, are efficient instructors of our youth.

But while we would like to write in general praise of the efficiency of the department, we feel it our duty to point out some glaring defects in the administration of the Board of Education that have grown up in the course of years and which will destroy in time the usefulness of our schools. The rule giving each member of the Board of Education an absolute right to appoint in turn teachers to fill vacancies is a practice which is liable to lead to grave abuses. It permits each member the privilege to appoint whoever he pleases, providing the candidate has a legal certificate to teach. The result is that many of the members of the Board are loaded down with pledges made before their election to appoint political friends irrespective of fitness for the position. It destroys legitimate competition among the more worthy candidates, for it deprives the Board of Education of its right and duty to investigate the comparative merits of every applicant for any position.

This system has also engendered a greed for patronage, which has filled our schools with a number of useless teachers, and swelled the disbursements of the School Department far beyond the comparative expenses of any other public schools in the country.

While the average daily attendance of our public schools has decreased 374 since 1885, the number of teachers has increased 137, as the following table copied from the last report of the Superintendent of Schools will show.

Comparative School Attendance.

Year.....	Average daily attendance.....	Number of teachers.....	Salaries of teachers.....	Increase of teachers salaries.....	Average daily attendance per teacher.....	Tuition per pupil
1885.....	32,183	734	$646,401 25	.....	44	$20 08
1886.....	32,146	716	698,743 80	$52,342 55	45	21 75
1887.....	31,316	799	726,175 65	28,431 85	40	23 19
1888.....	30,191	806	741,951 45	15,776 80	37½	24 00
1889.....	31,609	828	760,742 10	18,790 65	38	24 38
1890.....	31,352	859	795,106 80	34,364 70	36½	25 36
1891.....	31,809	871	810,989 54	15,882 74	36½	25 4 9

Average daily attendance—decrease, 374; number of teachers—increase, 137; salaries of teachers—increase, $164,588 29; average daily attendance per teacher—decrease, 7½; tuition per pupil—increase, $5 41.

We also desire to enter our protest against placing little sensitive children in dark and ill ventilated basements. In the Clement Grammar School two basement rooms are occupied by infant classes where no ray of sun ever enters. In the Pacific Heights School two primary classes are in a low studded basement with but little larger windows than the port holes of a ship, and when these French windows are opened for ventilation the little ones are exposed to a draft which is exceedingly dangerous to their health. There are also from fifteen to twenty fragmentary classes in yard shanties, open hall-ways, and small dress-rooms, some of which are without stoves, and very imperfectly ventilated.

These are generally occupied by less than half classes and should be at once condemned as unfit for human habitation.

If less money were expended on extra teachers not required for the instruction of the department, there would be ample means to furnish suitable accommodation for every child applying for admission.

Police Courts.

The Police Courts of the city are so crowded with business that the interests of justice not infrequently suffers for that and other reasons. In a number of instances, that have been brought to our attention, there have been dismissals of charges, and sometimes refusals to issue warrants when a contrary course should have been pursued.

In one case a clerk in the office of the Prosecuting Attorney of Department No. 1, assumed the responsibility of dismissing a serious case—a charge involving a serious public offense—under circumstances that were totally unwarrantable.

From the report of our expert, the conclusion cannot be resisted that there is prevalent a very loose habit in the matter of the acceptance of bail bonds.

There have been complaints before us also of the frequency of continuances and the ease with which they are obtained apparently. All of this, however, may be due, as above stated, to the enormous pressure of business and the impossibility, under the present circumstances, of giving to each particular case, that attention which it ought to receive.

We close this branch of our report with the suggestion that the public weal would be much better subserved if the appointment of the Prosecuting Attorneys in the Police Courts was vested in the District Attorney. The wisdom of such a course seems to us to be obvious. Then, instead of having a diluted and diffused responsibility, it would be concentrated in one man to whom the public would look for the efficient enforcement of the law in these courts.

As the law is now, the Boards of Supervisors control the appointments of the Prosecuting Attorneys, and the District Attorney is shorn of all power to supervise or direct those officers who should be his subordinates.

Charitable Fund of the Fire Department.

The sum of about $7,000, which had been deposited in various savings' banks to the credit of the above named fund for several years, was removed from these banks by the officers of the fire department several months ago and handed over to Mr. John Dougherty.

He acknowledges holding $6,000 of that sum yet, having disbursed about $1,000 in legal expenses, for which we can find no authority. He is not in any manner connected with the fire department, and we can see no reason why this money should be permitted to rest in his hands without interest and without bonds for its safety.

Miscellaneous Offices.

Reports have already been published by the proper committees in regard to the condition of the streets and the prevalence of social evils in the city.

Respecting many municipal offices, including those of the sheriff, county clerk, coroner and others, we have not had time to look into their methods of transacting the city business, nor did our experts find leisure to examine the books.

Conclusion.

There may be a presumption that we have not been sufficiently explicit, and that names of culprits should have been mentioned. But this would have been at best an invidious task and the enumeration would be too prolonged.

What is the remedy?

Gibbon, describing the condition of Western Europe before the accession of Charlemagne, says "that he does not know whether there was more vice or less virtue." The description would not be amiss to-day.

The rapacious horde ought to be driven into the sea, but are we forced to the melancholy conclusion that the abstention of the Railway from participation in public affairs is the only condition of freedom from this defilement? Is its power all-pervading, and shall there be no limit in point of time to its supremacy? No class seeks to confiscate its property nor depreciate the services the managers have rendered the State. But it infects every thing it touches politically. For its aims are solely selfish; financially selfish. It has debauched both parties until an honest man cannot aspire to political office without fear of contamination.

To Ex-Judge Rhodes of the Supreme Court we offer the sincere tribute due to an honest and upright man. His services have been gracefully accorded, and we return him as guerdon all that we can give him, and all that he has received—our thanks.

Acknowledgments are due to Mr. L. R. Ellert, member of the present and past Board of Supervisors. He is of those who, in the future as the past, will be of the few who are chosen though the many fail.

District Attorney W. S. Barnes is entitled to more than an ordinary meed of justice. We are not given, as may be noted, to bepraise officials; but with an environment that at first made us doubtful he has quite fully convinced the Grand Jury of his capacity and integrity.

Mayor Geo H. Sanderson is another officer whose efforts to aid us in our irksome duties have been cordially received. Though fully aware of the evils existing in certain offices, including the street department, he has been unable to correct them. Remonstrances have been unavailing, and the necessity of giving the Mayor power to do something more than complain is obvious.

Although only an "illegal precedent," yet we believe that our labors will not prove entirely fruitless, and we may add that it has been to us an ordeal not lightly forgotten.

And so, having been stricken a mortal blow by the Supreme Court, we say to the people of California,

MORITURI SALUTAMUS.

Barclay Henley,	C. W. McAfee,
James Denman,	J. H. Mundy,
H. L. Dodge,	Mark Sheldon,
Chas. Holbrook,	W. S. Zeilin,
Irvine Graham,	Reuben Tucker,
William Cluff,	Wm. M. Cubery,
P. J. Kennedy,	Jeremiah Lynch.
John A. Lennon,	

San Francisco, December 23, 1891.

RESOLUTIONS.

At a mass meeting in Metropolitan Temple on Tuesday evening, January 5th, 1892, the following resolutions were unanimously adopted:

WHEREAS, The late Grand Jury has developed the deplorable fact that official venality of a most depraved type exists in the government of this city and State; that apparently all positions, from a United States Senatorship to a janitorship in the school department are sold to whomever would buy; that members of our Legislature brazenly and cynically bartered for money their high privileges, that Supervisors and other officials of this city and county have permitted political bosses to use and sell them like harlots; that these same political bosses, including not alone those here, but also those who are absent, have controlled absolutely the city and county conventions of both political parties; and finally, that the defilement is so great as to imperatively demand a change on the score of self-respect and American manhood; now therefore be it

Resolved, In this assembly of citizens united by the bond of patriotism, which is stronger and better than mere party associations, that the grateful appreciation of the commonwealth is accorded to the Hon. William T. Wallace, Superior Judge of San Francisco, to whose learned brain is due the inception of this movement, which will not stop until our State is made habitable to honest men.

Resolved, That the thanks of the community are due to the late Grand Jury, who have done their duty courageously, amidst threats, temptations and insidious advances by corporations, and we shall ever regret that the Jury were prevented from exposing more of the rascals and their crimes to the light of justice.

Resolved, That we denounce the culpable and criminal interference of the Southern Pacific Railroad Company in politics as the first cause of the vile corruption that exists everywhere, and we warn them to desist and let us govern ourselves; and be it further

Resolved, That the Chairman be authorized to appoint herewith a committee of seven who shall designate a body of thirty citizens to act as the permanent Executive Committee of an organization to be composed of public-spirited citizens. The objects and purposes of this organization shall be the liberation of this fair city of San Francisco and our loved State of California from the slavery and degradation of rascality and boodleism, and to see that the work of the late Grand Jury in indicting criminals shall not be lost or dissipated, but be carried forward to the full extent of the law.

CHARGE TO GRAND JURY.

SUPERIOR COURT, CITY AND COUNTY OF SAN FRANCISCO, DEPARTMENT 6, AUGUST 20, 1891.

The Grand Jury having been impaneled and sworn, Mr. Presiding Judge WILLIAM T. WALLACE delivered to them the following charge:

The Grand Jury being impaneled and sworn, I am required by law to deliver to you a charge; and in doing that to impart to you such information as may be deemed proper.

An elaborate detail of the rules of law governing the production and application of evidence and of the regulations by which the sittings and proceedings of the Grand Jury are to be governed, is scarcely necessary, because all these will be found plainly set down in the codes which will, of course, be in your hands. You are all gentlemen of large experience and high intelligence; besides, your foreman here is happily himself a lawyer of marked ability and thorough knowledge of law; moreover, you are entitled to have the official advice of the district-attorney, an officer of great efficiency in the discharge of his duties, as well as the advice of the Court, should you at any time suppose yourselves in need of it.

The language of the oath which you have just taken, if you have carefully attended to it, as you no doubt have, has already furnished you in a great measure with all the information requisite to the proper discharge of the important duties now devolving upon you. The phraseology in which that oath is couched has undergone but little change; in its diction it is much, and in its substance and meaning it is altogether the same as has been administered among English-speaking people for more than seven hundred years—from the days of the first Plantagenet.

As an institution the Grand Jury is Anglo-Saxon in origin. Coming down more immediately to us, it is seen to harmonize in a peculiar manner with our representative system of democratic government, for the Grand Jury comes from time to time from the body of the people, and is, indeed, the especial basis, the very tap root, as it were, of that enlightened freedom which distinguishes ours as pre-eminently a self-governing people.

In our history there is, perhaps, no other single institution which has played so important a part in the administration of public justice and the suppression of crime, none that has proven itself so indispensable to the peace and well-being of society, the safety of the individual citizen, and the honor and good repute of the State. It originated in the necessity of protecting subjects against the high-sighted tyranny of the Crown. Its modern office is the protection of citizens against the low-sighted crimes of thieves and law breakers, in public as well as in private life.

In the first place, you have sworn that your proceedings shall be secret and that you will keep them so; the circumstances under which, and the limited extent to which you may properly disclose them are only those defined in the code. Apart from these you are pledged to absolute secrecy. Any person, therefore, who seeks to infringe that secrecy, to obtain from you knowledge or information concerning your proceedings, s himself a law breaker, and the attempt upon his part, under whatever pretense it may be made, is necessarily an imputation cast upon your personal honor, an assumption upon his part that you are so debased and degraded in personal character as to deliberately break the solemn oath you have taken. It is hardly necessary to add, that in case of such an attempt it will become your duty, not only to yourself but also to the Court, to promptly report it.

In general character your functions are judicial; you are distinctively an investigating, an interrogating body, and in pursuing your inquiries and reaching the results of your examination you are clothed by law with the personal immunity from civil responsibility which is accorded to Courts of

justice acting within their appointed sphere of duty. Your method of proceeding is distinctively inquisitorial—you are as watchmen stationed by the law to discern when, where, and by whom that law has been broken and its commands infringed. Your special and peculiar mission is to look after and inquire about the important mass of affairs—public affairs—which concern every body in general and nobody in particular, and as to which it is paradoxically proverbial that, being everybody's business, they are nobody's business. These public affairs thus placed under your scrutiny are not municipal merely; you are not limited to even the very careful examination of the books, records and accounts of the more than forty offices which are embraced in the government of the city and county of San Francisco, and to which the law makes it my duty here to call your especial attention. You are therefore not to content yourselves with looking to see whether in November and December of the last year more coal was purchased and purported to be consumed by the public offices here than could have been honestly expended in one whole year of time; nor whether it costs the city $600 per annum for the keep of a horse, nor yet whether the price of setting up a single hydrant in our streets is $45 with $30 more to maintain it for a single year. Such things as these must, of course, be looked to and carefully looked to by you; but as peculations they are but minor in character—they but point the way to other and larger and more serious wrongs committed, or said to have been. It is asserted that at the last session of the legislature the county of Colusa was territorially dismembered as the result of legislation procured only by means of bribery; that part of the bribe was a promissory note for $20,000, now, or lately, held on deposit here in the city, its payment to await the ultimate effectuation of the measure. It is rumored, indeed become notorious, that at the same session a corrupt combination—a trust—was formed by a majority of the members of the Senate of the State, to sell the legislation of that body to purchasers for a price, and that a like combination for a like purpose was organized in the Assembly; indeed a suit to recover a sum of money, which is said to have been a part of the gains made in that business, was lately brought and actually tried here in this Department of the Court.

I advert to these matters merely by way of introduction to and illustration of the instruction which I now give you, which is, that *for you* such rumors are *facts;* not facts, of course, upon which to find an indictment or indictments of anybody; that can only be done after legal evidence of the commission of the offense shall have been first obtained by you, but these rumors are facts upon which your inquisitorial, investigating power is put in motion. You must investigate them, you must inquire concerning them, not in a formal or perfunctory manner, not as those who having eyes see not or having ears hear not, but in the language of your oath, *diligently*, with assiduity and with the intent and purpose, in good faith, to find out the truth, and if the commission of the offense be proven, to present an indictment or indictments here against the guilty parties, provided the offense be one which (to quote the statutory phrase) is "*triable*" in this city and county.

And this suggests the inquiry as to what is an offense "triable" here. I instruct you that any offense committed in the State is triable in the city and county of San Francisco if committed here either in whole or in part. If an offense committed in the State be made up of several distinct and essential acts, then such offense may be tried here, and consequently may be investigated by you, if any one of such acts be done here in this city and county.

I have touched upon nearly every subject supposed to be necessary now.

There is one matter, however, not yet adverted to, which is of importance as much, perhaps more, than the rest; that is, you must remember that you are not organized to accuse any one, neither are you organized to acquit any one. You have sworn to have neither friends nor enemies in this business—that good will and ill will shall alike be put aside—that neither enmity nor friendship shall weigh aught in your deliberations, but that dismissing all interest, passion and feeling your one enduring theme shall be "the truth, the whole truth, and nothing but the truth, according to the best of your skill and understanding." It is honesty to honesty engaged that this shall be.

Gentlemen, you "have spoke the word and will not palter."

Official copy.

VERNON,
Reporter to the Court.

Address on Receiving the Grand Jury's Report.

IN THE SUPERIOR COURT, CITY AND COUNTY OF SAN FRANCISCO, STATE OF CALIFORNIA.

DEPARTMENT SIX.

HON. WM. T. WALLACE, Judge.

On Wednesday, December 23, 1891, in finally discharging the Grand Jury, Mr. Presiding Judge William T. Wallace addressed the retiring Grand Jury as follows:

Gentlemen:

You came here as a Grand Jury representing the people, and to respond to their claim that the most open and shameless legislative crimes that ever digraced the civilization of an American State should be investigated; that the truth or falsity of charges which have, at home and abroad, covered the name of California with obloquy should be demonstrated; that inquiry should be made as to how it is brought about that in the apportionment and distribution of the necessary burdens of government—the imposition of taxation—those burdens and that taxation are imposed upon the comparatively poor man, who out of his poverty must pay, while the rich and their abundance are practically exempted from their just share.

The hopes of the people that you would prove equal to this important duty were high and apparently well founded, nor have those hopes, so far as you are concerned, proven illusory; but in the midst of your labors a judgment of the Supreme Court of the State has been pronounced, the necessary effect of which is that your investigations must cease—must be discontinued—that you are not a Grand Jury and must retire. It is under these circumstances that we meet today, and for the last time. It is my duty to say something to you before you go.

THE CASE STATED.

In impaneling the Grand Jury the Court here made an order that Henry H. Scott, Esq., be appointed as an "elisor" to summon nine good and lawful men to complete the panel.

In the case of Elwood Bruner, lately before the Supreme Court, upon his application for a writ of prohibition, that Court held the appointment of Scott invalid. Say the Court: "Our conclusion is that the Court below had no authority to appoint said Scott to select grand jurors, because there was no case to which the power of appointing an elisor applied."

The statute, Code of Civil Procedure, section 242, provides that if of the persons drawn and summoned to act as grand jurors a number "less than nineteen are present, the panel may be filled as provided in section 226 of this Code."

Turning now to said section 226, it is there provided that in order to fill an incomplete panel the Court may draw the required names out of the box, *or* direct the sheriff *or* an elisor forthwith to summon them.

Now, on Monday, the 17th day of last August, the contingency thus provided for by this statute did unquestionably occur here. Of the persons theretofore drawn and summoned to act as grand jurors only eighteen—less than nineteen—did appear here, and of the eighteen so appearing, eight having been excused for cause, it became necessary to summon nine other good and lawful men to complete the panel of nineteen required for a Grand Jury. Mr. Scott was appointed an elisor for that purpose, and, having been first duly sworn, did subsequently make return here of the names of nine good and lawful men summoned by him to serve as grand jurors, and who being personally present were immediately thereafter sworn of the Grand Jury in the presence of the Court here, and, a foreman having been appointed, the charge of the Court was delivered, and then the Grand Jury retired to consider of the business to come before it.

It is thus made plain to even the dullest comprehension that the precise condition of

fact in which the statute had provided that an alien might be appointed and where and, further, that in making the appointment as well as in the use of the other several steps taken in completing the panel, the provisions of the statute were carefully considered facts and followed with the most understanding exactitude; yet the Supreme Court said: "There was no case to which the power of appointing an alien applied."

Stated in general terms the principal reason assigned by the Court for this remarkable conclusion is that an ordinary law must prevail over one to the effect that the sheriff was disqualified to summon the grand jurors.

The obvious answer to this is that no such affidavit is required by the Code of Civil Procedure which has not been used, and because it is not required by that Code such affidavit is not required at all. Why? Because the same Code of Civil Procedure section 2 expressly provides that in the Code of Civil Procedure establishes the law of this State respecting the subjects to which it relates," and that the empaneling of grand jurors is one of those subjects as has appeared in any quarter in fact the entire fourth article of the Code of Civil Procedure, sections 241 and 242, is exclusively devoted to that subject. That article is superseded, absolutely carried, comprehensively labeled "Of Empaneling Grand Juries." How consistently can any right of section 4 of the same Code just cited prevail against the provisions of that article? It is true that the Code does not say in so many words that it is to be taken as embracing the law of empaneling grand juries. The Civil Code adequately answers any reference to that subject—rather does the Political Code as well as possibly cannot—but in order to include into a plan of empaneling grand juries which should be complete in itself in addition to the provisions provided by law in the Code of Civil Procedure and other statutory provisions and which are necessary for the purpose to provide certain provisions found in the Penal Code and the state military—you—

Therefore such proceedings shall be had in empaneling a grand jury as are prescribed in part 3 of the Penal Code." Code of Civil Procedure section 241, supra.

But neither the Political Code nor any of its provisions were then referred to, they were omitted and omitted on purpose, and why—for what reason—was the Political Code and all and especial its provisions thus omitted and excluded in the legislative plan for the empaneling of grand jurors? Because the legislative purpose was to say in part, was that none of the provisions of the Political Code should apply to the empaneling of grand jurors. It is to be said the answer and why the conjecture why it was that when the legislature undertook to specify and enumerate what particular laws of a civil nature were the Code of Civil Procedure should be looked to in empaneling grand jurors, it mentioned the Penal Code and omitted to mention the Political Code? It mentioned only the Penal Code, and it did not adopt even the whole of that. The adoption of the provisions of the Penal Code was obviously restricted, it was manifestly confined to specific portions of that Code—to the portions in which are to be found certain substantive and personal provisions concerning the empaneling of grand jurors and which are set forth in the Penal Code. Those begin with the second chapter of the fourth title of the second part and are there very comprehensively entitled.

Formation of the Grand Jury

In the Code of Civil Procedure as with reference to this was even obligatory. But grand juries have been unwillingly made to the Political Code because the Political Code contains in itself nothing whatever to treat of just the one subject to be considered—the empaneling of grand juries—as to be found there, and because the Political Code has itself expressly declared that the subject of empaneling grand juries is not included, neither is that of which is to be considered as how and generally, but only upon the subjects to which related. In other words to the empaneling of grand juries long years in the Political Code, of course no reference to it upon that subject could be intelligently made, and this was accomplished by the legislature when it so that were to have been intended that the provisions constituted part of the statutory law governing the empaneling of grand juries the legislature would have made reasonable accompanying which it was left to the ruling of the Supreme Court to the Senate now to bring about.

Now notwithstanding it is true expressly provided by the Political Code that it shall not be construed as altering the plan of the existing formal laws and the specific enactments of the Code of Civil Procedure that it shall prescribe the law on that subject, the decisions of the Supreme Court, in spite thereof, of both these provisions has declared that there are certain provisions of the Political Code which do affect and do control the provisions plan provisions of the statute touching the empaneling of grand jurors, and that Court thinks that to the purpose the Political Code and the Code of Civil Procedure are to be read together upon a subject mentioned in the one but not mentioned in the other.

THE FIRST ERROR OF THE BRUNER DECISION.

If this method of construction is to prevail generally and the Codes are to be construed after that manner, they must henceforth be read as though the provisions in each qualified, restrained and, as would in some instance be the case, altogether defeated the provisions of each and all the other Codes; and yet, in order to avoid the confusion and uncertainty which such a construction would involve, I have already had occasion to observe upon the fact that in each of these Codes—that is to say, in the Code of Civil Procedure and in the Political Code—it is expressly provided, section 4, that each Code is to be construed by itself upon any subject to which it relates, and is to be taken as establishing the law of the State upon the particular subject to which it does so relate; to hold otherwise, as the Supreme Court have done, is, therefore, to plainly disregard this rule of construction prescribed by the statute itself; it is in this that the first and fundamental error of the Bruner decision is to be seen; the provisions of the Code of Civil Procedure, though clearly purporting upon their face to deal with the impaneling of Grand Juries, and as a distinct legislative subject, are upon the rule now announced in the Bruner case, to be understood as changed, altered, modified by the other and independent provisions of the Political Code though entirely upon other and different subjects, and none of which upon their face purport to deal with the impaneling of Grand Juries at all.

These matters, gentlemen, and the conclusion to which they point, are so plain in themselves that their mere statement to a person of even the most ordinary intelligence is supposed to be enough.

This unauthorized—nay, plainly forbidden—mingling of these codes was necessary in order to assert that an affidavit showing the disqualification of the sheriff should have been first filed here before the elisor could be appointed, for unless the Political Code could be first injected into the body of the Code of Civil Procedure the supposed necessity for such an affidavit could not be even surmised, the Political Code being the only one in which the affidavit is mentioned.

Just at this point, and in support of the general proposition that the appointment of Mr. Scott as an elisor was unauthorized, the majority opinion of the Supreme Court embarks upon an elaborate and erudite consideration of the meaning of the word "elisor" at common law. The dictionaries of the law are accordingly exhausted upon the definition; Blackstone and the hornbooks of jurisprudence are brought into requisition to prove that at the common law an elisor is an officer appointed only in case the sheriff and the coroner be disqualified; but all this might well have been spared since no one, at least so far as known to me, has ever disputed this asserted rule of the common law in that respect. Their Honors would indeed seem to have overlooked the important consideration that the precise question in hand is one of *practice* merely—of the mere *mode* of making the fact of disqualification appear to the Court; is the particular mode of proof known as an *affidavit* indispensable? They have cited nothing to show that an affidavit establishing the disqualification was indispensable even under the practice at common law, and if they had shown it to be so it would have been of not the slightest importance here, since our practice is confessedly not that of the common law, but only such as is prescribed by our own codes, which supersede and supplant the whole body of the common law upon questions of mere practice, civil and criminal as well.

THE QUESTION OF CHALLENGE.

Admitting, then, and to its utmost extent, the proposition that before an elisor could properly be appointed the sheriff (and the coroner, too, since the Court will have it so) must have been challenged as incompetent, it still remains to inquire if it be indispensable that such challenge must be made by affidavit only—that all other, even the most satisfactory methods of proof of the fact of disqualification, must be rejected—absolutely disregarded. For myself, I have as yet seen no such law, common or statutory.

But all this discussion is merely fanciful; it cannot affect the question of the validity of Mr. Scott's appointment, because before he was appointed as an elisor both the sheriff and coroner had been in fact challenged here as being incompetent—disqualified—to summon the grand jurors; they had been challenged by the Court itself, and this challenge had been made in open Court at the time the elisor was appointed, and before he was appointed, and upon the certain and judicial knowledge of this Court that these officers were disqualified to select the Grand Jury.

The fact of their disqualification was judicially known to me here, and therefore it was—must have been—judicially known to the Supreme Court also; that tribunal, as well as this, knew and well knew that neither the sheriff nor the coroner was indifferent in this business. As for myself, the matter making up their disqualification was not only judicially known to me—which was enough—but it was also a matter about

which the law had especially commanded me to inform you, and about which I did inform you accordingly in my charge delivered to you here when you were impaneled as a Grand Jury.

To aver that either the Supreme Court or this Court was ignorant of the disqualification of these officers, is but to say that that Court or this Court was ignorant of the public statutes of the State in which they both sit; for the Penal Code, section 928, is as follows:

"It shall be the duty of the Grand Jury to make a careful and complete examination of the books, records and accounts of all the officers of the county * * * and report thereon. * * * The Judge, upon the impaneling of such Grand Jury, shall charge it specially as to their duties under this section."

AFFIDAVITS UNNECESSARY.

In view of this public statute, of what possible utility would have been an affidavit of some person to the same effect interposed here when such an affidavit could in any event have only informed me of a fact which, as observed before, I not only already well knew, but was also bound to communicate to you—the fact that both the sheriff and the coroner *having been in the actual discharge of their respective official duties*, were, because of that fact, persons whose offices and official conduct it was your sworn duty to investigate with diligence, and, moreover, with strict impartiality.

Will any one claim it to be law, either statutory or common, or that it is common sense or even decency that either one of these officers to be thus investigated by you, should himself select you, or select the persons by whom this prescribed investigation of his own official conduct was to be conducted? Certainly not.

This known disqualification of the sheriff was adverted to by me here in open Court when Mr. Scott was appointed an elisor, and was then assigned by me as the reason why the sheriff was not directed to summon the grand jurors. The fact that he was disqualified to act, because he was an officer to be investigated by the Grand Jury, was then pointed out and expressly stated as the reason why the appointment of an elisor had become necessary.

The Court then already knew—judicially knew—the fact that the sheriff and the coroner were disqualified; and it is because of such knowledge that an affidavit of any one else stating that fact, had such been offered, would have been superfluous, vain, and therefore unnecessary.

AXIOMS OF LAW.

To say this is but to repeat a known rule of law based upon common sense, and one which finds, and has always found, a conspicuous place in every system of law to which our people are accustomed, especially in that of the common law where it has ever been a recognized maxim *lex non requirit verificari quod apparet curiæ*—"the law does not require a thing to be proved, which is already known to the Court," and where there is also another and cognate maxim, equally as significant in its application here, "the law never requires useless things, for useless things are a folly." An affidavit on the subject would have been but a folly—a folly denounced by the maxim of the law, and yet it is in the fact that such a folly was not committed here when the elisor was appointed that the Supreme Court finds its opening and chief reason why the appointment itself was unauthorized and must be overthrown.

The administration of the common law in the country of its origin was always modified and tempered by the application of these rules and others as sensible as these, and it may be safely asserted here that in no English Court of justice, nor in any other than in our own Supreme Court, nor ever in that Court until now, has it been held that a trial Court in the exercise of general criminal jurisdiction had no authority to appoint an elisor, even when it had judicial knowledge of the disqualification of the sheriff and coroner to summon a Grand Jury.

Indeed, if the views of the Supreme Court now announced are to become permanently engrafted upon our judicial system, the important doctrine of the judicial knowledge of Courts of justice must be considered to have been abrogated altogether.

This would be to introduce a radical change, and one wholly unanticipated here, because the judicial knowledge of Courts of justice and the proposition that matters to which that judicial knowledge extends need not be proven as other matters must be to become the basis of judicial action, is conceded everywhere and is especially recognized in our Code of Civil Procedure, sec. 1,875, by a whole chapter entitled "Knowledge of the Court;" and a further and significant caption found in connection therewith as follows: "Certain facts of general notoriety assumed to be true."

The second one of these is as follows: "*Whatever is established by law*" so the Court *must* know, and therefore *must act* upon whatever is "established by law," and as seen already, the disqualification of both the sheriff and the coroner was "established by law," because they were officers

whose official acts theretofore performed were to be carefully investigated by the Grand Jury. Penal Code, sec. 928, *supra.*

And the Code of Civil Procedure just quoted, upon the subject of judicial knowledge of Courts of justice, is but a statutory restatement of the general rule of law already theretofore prevailing, by which rule such judicial knowledge had always extended to and embraced all facts public and notorious in character, as well as *all matters of public law* including the tenor of the existing statutes of the State in which the Court sits.

It must therefore be clear to all that in point of fact, before the elisor was appointed here, the sheriff and coroner had been challenged as incompetent precisely within the definition found in Bouvier's law dictionary, especially relied upon by the Supreme Court —challenged *by the Court*—and the challenge of the Court was not based upon matter as to the truth of which there could, in the nature of things, be any doubt or uncertainty —it did not rest upon a fugitive affidavit volunteered here by an interloper, and which might after all turn out to be false, but upon the surer and far more reliable knowledge of the Court "itself"—a knowledge derived to it from a public law which it was bound to know, and by which the fact of the disqualification of these officers had been plainly and unmistakably established.

Surely these conditions must satisfy the requirements of all law, those of the common law, as well as those of the Code of Civil Procedure and the Penal Code, and all other systems of law which recognize the judicial knowledge of the Court as a proper ground upon which the Court is to proceed in the performance of its duties.

Does the Supreme Court now mean to maintain that a Superior Court, sitting in the performance of its high duty to impanel a Grand Jury to inquire of infractions of the criminal law, must permit a disqualified sheriff—a sheriff known to the Court to be disqualified—and by reason of his disqualification unfit to summon grand jurors, to nevertheless proceed and summon them, merely because no one had volunteered to come forward and by affidavit state to the Court the same facts, and point to the same law of which the Court already had perfect knowledge, and by which it was already bound to be governed?

It can hardly be supposed that the Supreme Court would admit in terms that it means to so rule, and yet the decision in the Bruner case assumes that proposition of law as correct, and makes it its chief support; without this assumption the whole fabric of the elaborately constructed argument of Mr. Justice McFarland tumbles to the ground.

With this I leave this branch of the general subject, protesting that in all the proceedings taken by me here by which this Grand Jury was impaneled, beginning with the order directing it to be drawn, and concluding with the moment of time at which the Grand Jury impaneled withdrew from the presence of the Court to commence the performance of their duties, every provision of statutory law in this State had been carefully examined with unsparing research and the most anxious desire upon my part that nothing should be done or omitted in this business that was not seen to have the warrant of express law in its support.

Second.—It has thus been shown, I trust, that the decision of the Supreme Court by which an affidavit is declared indispensable finds no warrant in the common law, nor in the Code of Civil Procedure, where the subject of impaneling Grand Juries is specially dealt with, nor in the Penal Code, specific portions of which have been adopted by the Code of Civil Procedure for that purpose.

But in order to obtrude the affidavit proposition into the case it became necessary that the Supreme Court should marry the Political Code to the Code of Civil Procedure, for it is in the Political Code only that the affidavit is mentioned at all, and unless these two Codes could be thus made one it could notbe even pretended that an affidavit had any possible connection with the subject of impaneling a Grand Jury.

One of the difficulties of this proposed union of these Codes is that each one of the Codes themselves had deliberately rejected the other for such a purpose. To say this is only to again point to what has already been said; it is to advert to the fourth section of each one of these Codes, in which section the demarkation of the boundary line between them, and beyond which neither one was to be considered as having gone, is plainly seen; each one of these Codes, as observed before, confines itself by direct expression to "the subject to which it relates," and in the whole extent of the Political Code no subject, such as that of impaneling Grand Juries, is alluded to even in the most distant manner. At least I have carefully, and with the aid of others whose absolute familiarity with the text of all the Codes of this State is known, examined the Political Code throughout, and no such allusion has been found there.

It is to be observed that the Political Code undertakes to define the duties of county officers—treasurers, clerks, auditors, tax collectors, recorders, assessors and the like—and among them, of course, the duties

of the sheriff as being a county officer, but this proves nothing. For when the Political Code refers to the "sheriff" as a subject of legislation, it by no means refers to "the impaneling of Grand Juries" as such a subject. There would be the same warrant of law to make an extract from the provisions of the Political Code, concerning the duties of a recorder or a surveyor, and then apply it to the subject matter of impaneling Grand Juries, as there is to make it from the provision concerning the office of sheriff and so apply it.

It is the section 4,192 of the Political Code which is especially relied upon in the opinion of Mr. Justice McFarland. It is too long to copy it here. It begins by providing how process and orders in an action or proceeding may be executed in the first instance, and subsequently how they may be executed in case of disqualification of both the sheriff and the coroner, where such disqualification "appears by affidavit to the satisfaction of the Court;" but the impaneling of a Grand Jury is not an "action," neither is it a "proceeding," in a civil suit, and moreover, the section of the Political Code under consideration in each and every one of its provisions, contemplates a *contention* in a Court of justice, and one in which one or the other of the parties before the Court is unwilling that the sheriff or coroner, by reason of bias or prejudice against him, should execute the process in such suit. If either party be so dissatisfied, then it is made his business to make the fact of disqualification appear by affidavit to the satisfaction of the Court, and that his objection to the officer is well founded, and thereupon the Court is to appoint an elisor.

All this, however, is, upon its face and in every line of it, utterly foreign to and aside from those proceedings in Courts of criminal jurisdiction by which Grand Juries are to be impaneled. It cannot be supposed that it was the intention of those who framed the Code of Civil Procedure, and in that Code provided a plan for the impanelment of Grand Juries, perfect in itself, and to which nothing could well be added, had a purpose, or that they intended by a general expression in the Political Code, and in that portion of it the subject matter of which is expressly declared in its caption (sec. 4,175) "*Sheriff*," to disturb and defeat the detailed plan of impaneling Grand Juries already established in the Code of Civil Procedure; and especially such supposition can not be indulged in view of the fact that in constructing the Political Code, it had been declared that it should not relate to the subject of impaneling Grand Juries.

Third.—But let it be supposed, for the purpose of the argument, that all that has been now said by me in reference to the law applicable here is a profound mistake, and consequently that this was *not* a case in the language of the Supreme Court, to "which the power of appointing an elisor applied;" what then? Does it follow that a writ of prohibition should issue by which the entire proceedings here are to be arrested, and the Court and the Grand Jury forbidden to proceed with the investigation of crimes alleged to have been committed? By no means. These mistakes or misprisions, even if made, are but *irregularities;* they do not affect the *jurisdiction* of the Court; the Court itself is a Court of admitted general criminal jurisdiction; it has the authority to impanel a Grand Jury, and it *did* impanel one; being a Court of general criminal jurisdiction *all the intendments of the law* must go in support of its jurisdiction.

For illustration, one of the indictments against Bruner charged him with the commission of perjury here in the city and county of San Francisco. That is a felony; and a Grand Jury impaneled and sworn in a Court of general criminal jurisdiction and of unquestionable jurisdiction over such a felony committed, presented their indictment against him. Thereupon Bruner applied to the Supreme Court for an order that all further proceedings be prohibited, and that he be discharged without the trial the law had provided for in such a case. His petition for the writ of prohibition pointed out certain matters occurring in the impanelment of the Grand Jury, but which, if they had in fact occurred, could not in the nature of things amount to more than the irregular exercise of the jurisdiction of this Court—in no sense to a usurpation of a jurisdiction not conferred upon this Court by law. That such matters cannot be jurisdictional in their consequences is plain to every lawyer, by remembering that if Bruner had been tried, and had been convicted and had then taken an appeal to the Supreme Court, the judgment against him must have been affirmed by that Court, if no other error was shown except such error as is put forth in his petition for a writ of prohibition. That proposition of law is conceded on all hands—it was settled in the Southwell case—most quoted and apparently least understood.

In that case it appeared in the record on appeal that Southwell had been indicted by a Grand Jury, the individual names of which though formally drawn out of the box had never been placed in the box according to law. By statute of that day—the Statute of 1863—it was made the duty of the board of supervisors to select and prepare the Grand Jury list; the board had failed to do this; it had failed to make up any list—the

whole of the duties cast by law upon the board of supervisors would appear to have been done by the clerk—an unauthorized person who assumed to himself the functions of the board in that respect; the trial Court found that all these objections taken were true, and that the facts were as alleged; the Supreme Court accordingly accepted them as true, but nevertheless it affirmed the judgment against Southwell, by which he had been sentenced to the penitentiary for a forgery committed.

Now the admitted facts assailing the validity of the Grand Jury in the Southwell case were quite as serious in point of departure from the law of impaneling Grand Juries as those alleged to have occurred in the Bruner case; indeed, upon looking at them critically they will be found to be far more serious. Can it be supposed that the Supreme Court of this State would have *affirmed* the judgment of the Court below in Southwell's case if these irregularities—radical though they were—amounted to a defeat of *the jurisdiction* of the municipal criminal Court of this city and county, from whose judgment that appeal had been taken?

Will the Supreme Court in any case affirm a judgment of conviction rendered by a trial Court in which it appears by the record that the trial Court had *no jurisdiction?* Certainly not. All the decisions of the Supreme Court—they are too numerous to be cited here in detail—have followed the decision thus given in the Southwell case nearly twenty years ago, and followed it without the slightest deviation from its doctrines until now in the Bruner case. At a single bound the Supreme Court has passed from the proposition that such irregularities do not constitute *even an error* for which the judgment should be *reversed on appeal*, to the other extreme—to the proposition that although such proceedings would not be reversed for *such* an error, still they will in such case be *arrested by prohibition* as being in excess of the jurisdiction of the trial Court.

In other words, the Supreme Court declares that it has now discovered an irregularity which, though confessedly not amounting to a reversible error, still does amount to a *total want of jurisdiction* in the trial Court to proceed with the case.

I leave the further consideration of such a nondescript in law as *that* is to those whose curiosity about the mysteries of law may prompt them to further reflection and examination.

It may not be improper to add, however, in passing, that the late Hall McAllister was the counsel of Southwell, and defended him in the case referred to. As observed already, Southwell suffered a judgment of conviction; the general law of that day upon all the points involved is the general law of this day. Mr. McAllister might have saved his client if it had occurred to him that the irregularities which he there relied upon and which proved insufficient to obtain the reversal he sought, might be effectually availed of by a writ of prohibition, which writ upon the views now announced would have opened the door for the escape of his client.

When it is remembered who Mr. McAllister was, and the learning, ability, assiduity and ingenuity which he never failed to bring to the defense of a client, the fact that in the Southwell case he entirely overlooked a point of so much importance must excite our special wonder. Might it not suggest to those who think they have discovered it now that it is too valuable to accused persons, too effective in the sudden delivery of the guilty, to have been so long overlooked by the able body of attorneys and advocates who have habitually defended accused persons in our criminal Courts, and who have permitted hundreds of their clients to suffer the ignominous punishment of the felon without knowing—without apparently even dreaming—that a remedy so efficacious as this could be had, and for the mere asking?

And this suggests the thought in how many cases of the hundreds of persons now in confinement in the State prisons of this State might it not now be shown that irregularities as serious as those said to have occurred in Bruner's case have also occurred in the records under which they are now held in prison; and, what would be the effect of a writ of certiorari which would bring the record before the Court, for it might be claimed, with no little plausibility at least, that the supposed absolute *lack of jurisdiction* which prohibits proceedings pending would also annul proceedings finished. But as I have remarked, the doctrine of the Southwell case has always, since its announcement, been followed until now, and the cases are too numerous to justify their citation here.

There is one, however, occurring as late as the year 1888, in which the Southwell case was expressly mentioned, and which perhaps should be more particularly adverted to here. I refer to the case of the People vs. Goldenson, reported in the seventy-eighth volume of our reports, and where the opinion of the Court was delivered by Mr. Justice Paterson and concurred in by Mr. Justice McFarland.

Goldenson, having received a judgment of death, appealed to the Supreme Court, where the judgment against him was affirmed. Among other reasons assigned by him to reverse the judgment was "that the indictment was invalid and void because

found by a body of men calling themselves a 'Grand Jury,' who *had not been selected according to the requirements of the law*, and for *that* reason the Court *had no jurisdiction* of the alleged crime or of the defendant."

The important part of the response by the Supreme Court to this position of Goldenson was as follows: * * * "Whether this be *so or not irregularities* in the formation of a Grand Jury cannot be considered on motion to set aside an indictment; such motion can be addressed only to *irregularities in the proceedings of a Grand Jury*. People vs. Southwell, 46 Cal., 142." It is proper to add in this connection that in no respect has the law of this State upon the point in hand been changed since the year 1888.

I conclude this branch of the subject by observing that, under the rule well settled in this State heretofore and undisturbed for nearly twenty years, the matters alleged by Bruner in his petition to the Supreme Court for the writ of prohibition, were not jurisdictional in their consequences, nor even of sufficient gravity to have reversed a judgment which he might have suffered in that case, and that, this being so, it must follow by *mere legal conclusion* that they could afford no support to an application for a writ of prohibition, which must proceed, if at all, not only upon error committed by the trial Court, but upon the gravest and most serious of all errors possible—the error of jurisdiction exceeded.

Fourth.—But even if all that has yet been said here be not well founded, and be utterly discarded still the writ of prohibition, as issued in this case, is without precedent in this State in another respect; for conceding that there was the most obvious excess of jurisdiction made manifest in Bruner's case, still he had a remedy by appeal taken after conviction suffered. Such an appeal would have been a plain, speedy and adequate remedy; and because it was such a remedy the writ of prohibition to arrest the proceedings here was positively forbidden by law; thus by section 1,103 of the Code of Civil Procedure, "it—the writ of prohibition—may be issued * * * in all cases where there is not a plain, speedy and adequate remedy in the ordinary course of law." Such is the statute.

But we have higher authority for this than the statute—the authority of the Supreme Court itself. I refer to the case of *Strouse, Petitioner, vs. The Police Court*, decided only last year. 85 Cal., 49. The opinion in that case was delivered by Mr. Justice Paterson, and concurred in by Mr. Justice McFarland. The opinion in the Bruner case was delivered by Mr. Justice McFarland, and concurred in by Mr. Justice Paterson, and it is interesting in this connection to compare them—to consider these opinions together in arriving at what is the Supreme Court's interpretation of section 1,103, which as we have seen, plainly declares that a writ of prohibition shall not issue even in the case of ascertained excess of jurisdiction below, if in such case there be a plain, speedy and adequate remedy in the ordinary course of law.

The opinion in the Strouse case is as follows, and beside it is the opinion in the Bruner case by Mr. Justice McFarland, Mr. Justice Paterson concurring:

OPINION IN STROUSE CASE.

Paterson, J., McFarland, J., concurring.

"The petitioner was arrested under a warrant issued on said complaint, and in due time entered a plea of not guilty, and another plea challenging the jurisdiction of the Court. It is alleged that notwithstanding his plea to the jurisdiction the Police Court threatens to proceed with the trial of the charge against petitioner, and he prays for a writ of prohibition to restrain the Police Court from proceeding with the trial of the action. Section 1,103 of the Code of Civil Procedure, provides that a writ of prohibition may be issued in all cases where there is not a plain, speedy and adequate remedy in the ordinary course of law. This is not such a case. If the petitioner be convicted in the Police Court he will have a plain, speedy and adequate remedy at law by appeal to the Superior Court. Application for writ *denied*."

OPINION IN THE BRUNER CASE.

McFarland, J., Paterson, J., concurring.

"Would the petitioner have a plain, speedy and adequate remedy in the ordinary course of law? If there be such remedy it must be by appeal. But it would be a difficult proposition to maintain that a defendant in a criminal case * * * would have a plain, speedy and adequate remedy, because after conviction and judgment * * * he could have the illegal proceedings reversed on appeal. * * * Let the writ *issue* restraining the respondent as prayed in the petition."

In short, the writ of prohibition was de-

nied to Strouse because an appeal was a remedy *good enough* for *him*, but under precisely the same legal conditions the writ of prohibition was granted to Bruner because a n appeal was *not good enough* for *him*. Both of these decisions are quite recent, and each of them now stands as law authoritively defining the conditions under which a writ of prohibition may issue upon the one hand and the conditions under which it must be refused on the other.

This situation is scarcely reconcilable with another well known maxim of that common law which has been so repeatedly invoked in support of the overthrow of the Grand Jury here. The maxim is as follows : "*Lex uno ore omnes alloquitur*"—the law speaks to *all* with *the same voice.*

The writ of prohibition had been denied to Strouse, because he had a plain, speedy and adequate remedy by appeal ; it was, however, granted to Brun er, although he had precisely the same remedy by appeal.

The decision pronounced in each one of these cases points in a direction precisely opposite to that indicated in the other case. If there be any distinction between them, it is supposed to be only such a distinction as is asserted by Mr. Justice McFarland and the majority of the Supreme Court to exist between the decision in Bruner's case and that rendered in Haymond's case—"one *too clear to need discussion.*"

And this last observation suggests the thought that the decision now given in the case of Bruner is precisely in conflict with the decision so recently pronounced in the case of Haymond, referred to by the learned associate Justice. It was deliberately declared in the Haymond case that the Grand Jury here impaneled was a *defacto* Grand Jury. Six of the learned justices concurred in the decision. The record before the Supreme Court in bank in the Haymond case, was the record showing the steps taken in the organization of this Grand Jury. It was, in that respect, of course, the same as the record exhibited to the same Court in the Bruner case Now in the Haymond case and with this record before them, six of the members of the Court—no member dissenting—held the following language :

"It is sufficient for us to say that such a body has certainly a *defacto* existence, and this being so, the witness was clearly guilty of contempt in *refusing* to testify."

In other words, the Court then informed Mr. Haymond that it was his duty to testify before you as a Grand Jury ; they now inform us, however, in the Bruner case, that you, as a Grand Jury, had no authority to listen to Mr. Haymond when he should so testify ; and yet Mr. Justice McFarland, whose opinions are entitled to the greatest respect, has informed us that there is no conflict whatever between these two decisions. To my mind, if I am to indulge an opinion against so great an authority, in the one case the decision was that the organization of the Grand Jury, even *if* irregular, was nevertheless *valid*, and in the other case and upon precisely the same record, that the organization was *void*—not voidable merely, but void absolutely to all intents and purposes ; now, if this had been so held in Haymond's case, Haymond must have been discharged—*must* have been—for if your organization was *void* I would have had no more authority to order him to attend before such a Grand Jury—so called—than I would have had to order him to attend before the Board of Trade or the Traffic Association and there testify ; and of course if I had ordered him to attend before either one of those bodies to give his testimony, my order not being a lawful one, his refusal to obey it would not have amounted to a contempt, and so the Supreme Court *must* have discharged him instead of remanding him as it did.

It is thus made plain that in delivering its opinion in the Bruner case, the Supreme Court abandoned its position theretofore deliberately taken in the Haymond case—it countermarched and took up and now holds precisely the position first occupied by the learned Judge of this Court, sitting in Department 12 of the Superior Court here : the position that the proceedings in the impaneling of the Grand Jury were *null and void*, and that the nineteen gentlemen impaneled and sworn and charged by the Court were *not* a Grand Jury. It was only upon this new position that the investigations which the Grand Jury were proceeding to make could be stopped — the apprehended disclosures which would necessarily follow could be hushed.

It is indeed too late to say now that the decision in the Haymond case did not overrule the decision given here in Departmen 12 in Chute's case, and though the Suprem Court unmistakably overruled the decision of the Judge of Dep artment 12 *then*, they as unmistakably adopt and approve it *now.*

These reflections are important and no mistake should be made in understanding them, because the decisions referred to are those of the Supreme Court of the State, and as such they become the authoritative law of the land. No criminal can be prosecuted, no crime investigated nor punished, except the proceedings be in accord with the expressed views of the Supreme Court ; and if those views as expressed be contradictory —if upon a like state of facts and under like conditions they point first to one and then to another and precisely opposite conclusion—

it is matter of regret, because of the embarrassment to ensue to the Courts below in the performance of their duty in good faith to observe and conform to the understood views of the Court of last resort.

Fifth.—The argument contained in the majority opinion written by Mr. Justice McFarland is evidently founded in no small measure upon mere judicial policy.

The Court professes to discern in the exercise of the appointment of an elisor by the presiding Judge here the most imminent danger to the liberty and independence of the individual citizen, and a melancholy picture is drawn of the possibilities to grow out of the exercise of the so called "one-man power" involved—or supposed to be—in the impanelment of this Grand Jury.

That is an apprehension however, which may be readily set at rest. The power that appointed the elisor was not in any sense a one-man power; it was not mine, but the power of *all the twelve judges here* which was manifested in that appointment; I could do nothing, and did do nothing, as presiding Judge without the concurrence express or implied of the others, or a majority of the others. My tenure of the place of presiding Judge is one without a term; I hold it, and all my successors who are to come here, so long as the present Constitution remains, must hold it *at the mere will of his associates*—the other eleven Judges of the Superior Court.

The presiding Judge of this Court is declared by the Constitution, Art. VI, Sec. 6, to be an officer chosen by his associates to act in that capacity—an officer "*who may be removed at their pleasure.*" It is the duty of the presiding Judge of this Court, and it is one which I may take this occasion to observe I have faithfully endeavored to perform, to make no order, even the most unimportant, known or believed by me not to be in accord with the wishes and views of the majority of the Court; and applying this to the appointment of the elisor here, if a majority of the Court had at any time been of the opinion that that appointment was improvidently made, or if it contravened their views upon the subject they might and doubtless would immediately have so expressed themselves, and in such case it would have become my duty to defer to their wishes or resign the position of presiding Judge and had I failed to do the one or the other they might have removed me *instanter*.

A mere statement of these facts is an answer and a complete one to all that has been said and so often reiterated by the opponents of your proposed investigation of crimes committed, as to the supposed danger to the public involved in the appointment of the elisor.

As an argument against the appointment of Mr. Scott it is not new as found in the opinion of Mr. Justice McFarland; and while such a suggestion of apprehended danger to the citizen might have been supposed to have impressed itself upon the minds of even well-meaning persons who had not read the Constitution—did not understand the organization of the Court—and therefore did not know that the power of the presiding Judge here is but a shadow, it is a matter of no little surprise that the distinguished author of the majority opinion of the Supreme Court, who had himself taken so prominent a part in the framing of the Constitution of the State, should have so inopportunely forgotten the provision of that instrument as to have fallen into such an error.

What is done in this Court is therefore the act of all the twelve judges elected by the people for comparatively short intervals of service. The expressed apprehension of a possible abuse by this Court of its powers is now put forward by another Court also elected by the people, but for comparatively long periods of time, being only seven in number and any four of whom concurring may finally reverse or annul the proceedings here.

If such considerations as these are to be dignified as an argument against the existence of power, it might be suggested, with a like degree of plausibility that at some time in the unknown future, when the personnel of the Supreme Court may not be so distinguished for learning, ability and correct motives as happily at present, *its* power might be turned and perverted to acts of oppression of the individual citizen.

In other words, the argument indulged against possible abuse of power or the assumption of unauthorized power in the Court here would be of certainly no less force when applied to like assumption or abuse to be committed by a smaller body of judges, whose decision is not subject to be reviewed by others, as the decisions of this Court may be.

THE ARGUMENT OF PERIL.

The *argumentum ab periculoso* must therefore fail; and as an argument it was but the introduction to the assertion by the Supreme Court of a judicial policy of its own, and one which that Court believed would authorize it to give to the statute empowering the Court here to appoint an elisor a strict construction—in other words, would justify a search for a weapon by which the objectionable statute could be crippled or destroyed altogether.

Accordingly, the learned Justice begins: "It is apparent that the claim of power under the said section 226 to do the thing

complained of in the case at bar should be *closely scrutinized*, and *denied*, unless the power be found to be *clearly* given, for if it exists, it is a most *arbitrary* and *dangerous* power—one that can easily be used to unjustly destroy character, liberty or life."

This statement of the process by which the Supreme Court proposed to test the statute amounted to a declaration in advance of a deliberate purpose to obliterate it altogether, because of the supposed dangerous nature of the power it conferred. For, whenever a Court approaches the consideration of a statute declaring its purpose to *closely scrutinize* it, there is no instance which I can recall in which the statute survived the operation.

The older books are full of cases in which Courts have assumed to do this; in which the legislative will has been overridden and defeated upon views of judicial policy entertained by the Court, and which, not being in accord with the statute considered, led the Court to scrutinize it closely, and usually to deny that the statute said anything whatever unless it had said it "*clearly.*" But at this day such methods of construction are inhibited and out of warrant.

The people of this State, speaking through the legislative department of the government, have expressly taken from our Courts this dangerous method of construction—this procrustean plan of lengthening a statute or shortening it so as to adapt it to the Court's peculiar views of correct policy; yet the 226th section of the Code of Civil Procedure, where the authority to appoint an elisor is conferred, has been tortured in this manner, as may be readily seen upon perusing the majority opinion. But it ought to have been remembered by the Supreme Court that the Code of Civil Procedure declares that this must be no longer done; that such a rule of construction is expressly abrogated by statute, and a different "rule of construction of Code" substituted. Code of Civil Procedure, Section 4.

It is there provided in terms that statutes shall *not be strictly construed*, and further the provision is as follows: "The Code contains the law of this State respecting the subjects to which it relates, and its provisions and all proceedings under it are to be *liberally construed* with a view to *effect its objects* and to *promote justice.*"

Notwithstanding this plain and most significant provision of our Code the learned Justice announces that his deliberate purpose is *not* to liberally construe section 226, with a view to effect its objects nor to promote justice; but, on the contrary, to construe it *strictly*—that is to say—with a view to *defeat it* if possible, because of the dangerous power he conceives it to confer.

I am of course very far from attributing to the learned Justice any motive or purpose, other than what appeared to him a good one to be effected by applying his rule of construction. But I point out that by positive provision of our law, which provision he avowedly repudiated, it is the declared policy of the statute itself, which must be taken and accepted by all Courts as the proper policy, and as *the only* policy which must govern their decisions construing the statute. In short, that legislative policy must be adopted by the Court, and its own policy, however good that policy may seem *to it*, must not be substituted for the legislative policy.

The learned Justice volunteers the remark that "the thought of the legislature when enacting the provision, section 226 of the Code of Civil Procedure, would seem to have been directed *more* particularly to *trial* than *Grand Juries;*" it is incomprehensible how he could have fallen into such a mistake in view of the positive provision of section 242 of the same Code, where it is expressly provided that the method of filling the panel of a *Grand* Jury *shall be that provided in section 226.*

How is the thought of the legislature to be ascertained except by the enactments they have made—by the language they have employed?

In the case of *Cowles* vs. *The People of the State of New York*, decided in 1881, the Court of Appeals of New York held the following language touching this rule of construction: "But even in the Penal Laws the intention of the legislature is the best method to construe the law, though, truly, that is to be deduced from *all the words that it uses.*"

Again, the learned Justice observes as follows: "It would indeed be *startling* if a man should be put to the partial ignominy and hazard of a trial, at the will of any set of men whom a Court might choose to style a Grand Jury."

As against this expression I oppose the unanimous decision of the seven judges of the Court of Appeals of the State of New York. No State Court stands higher for learning, ability and integrity than the Court of Appeals of that State. Now, in the case of the People vs. Petrea, 92 New York Reports, page 128, there came before that great tribunal an appeal in the year 1883. It was brought by Petrea, who had been convicted of a felony. He had been indicted by the Grand Jury of the county of Albany. The Court decided, and it was unanimous, that this Grand Jury had been impaneled without any warrant of law whatever; that the statute applicable to the county of Albany under which it had been impaneled, was an unconstitutional statute—a statute enacted

in plain violation of the Constitution of the State of New York, because it was local to the county of Albany; it undertook to provide a method of obtaining Grand Juries in that county entirely different from the mode provided by the general law of the State; it authorized the recorder of the city of Albany to select the names of persons to serve as grand jurors, and to be placed in the box from which they were to be subsequently drawn for service. In short, there is not to be found anywhere, so far as I am advised, any case in which there was a departure from the law in impaneling a Grand Jury so gross in character as the one appearing in Petrea's case.

In their *unanimous* opinion the Court of Appeals, however, observed as follows:

"In times past Courts have been inclined to go very far in sustaining technical objections in criminal cases; but there is much less reason for this now than formerly;" and accordingly the judgment of the Court was that, while the Grand Jury in Albany had been impaneled in a manner *unauthorized by law*, the conviction of Petrea upon an indictment found by it was nevertheless valid, and so the judgment of conviction was *affirmed*.

This ruling was repeated in the next succeeding year in the case of Hoagbkerk, reported in the 96 New York Reports. The judges were *again* unanimous, and both decisions remain to day as unquestioned expositions of the law of the State of New York.

An examination of these opinions will show that this ruling of that great Court is mainly attributable to the *legislative* change of the rule of statutory construction to which I have referred, and to which that Court also refers; for the Code of the State of New York, like our own, declares that it shall not be strictly construed, "but all its provisions must be construed according to the fair import of their terms to promote justice and effect the objects of the law."

And the significance of this provision of the statute is recognized by the judges of the Court of Appeals of New York as furnishing the rule of construction upon which they proceed.

Had our Supreme Court paid the respect to the similar statute of California that the Court of Appeals of New York paid to the statute of that State, the decision in the Bruner case must have been different.

I have now stated (and much more could be added did time permit) the general views I entertain concerning the impaneling of this Grand Jury, and the reasons which controlled me here. Assuredly some one has blundered, a mistake has been made in some quarter; I venture to state that it was not made here. Justice has been defeated; the investigation of great crimes alleged to have been committed against the people of this State, has been suddenly stopped; the Supreme Court has interposed its authority to arrest the investigations which the Grand Jury was proceeding to make.

I think that the decision by which the writ of prohibition was issued in the Bruner case was reached only by overriding and disregarding the most important principles of criminal law as theretofore universally understood; and while I must respect the Court, and, of course, bow to its decision, I have shown, even by what I have here said, that what I did in this business had the plain warrant of the statute regulating criminal proceedings, and, moreover that of all the decisions theretofore made by the Supreme Court of this State; not a few of them by the justices who have now awarded the writ of prohibition in Bruner's case.

I have prepared and have in my possession the materials—the notes and references necessary for a much more elaborate and detailed examination of the law of this State heretofore prevailing as to the impaneling of grand juries; time consumed in the performance of other duties prevents my now saying more than is here said upon the subject, but I will hereafter, if necessary, place on file another and farther opinion in line with this, and one prepared with more elaboration, in which the propositions of law supporting the legality of my action in impaneling the Grand Jury will be examined and stated in greater detail than is convenient now.

And now, gentlemen, at all events the mistake referred to has certainly been none of yours. Justice can not upbraid you with the signal defeat she has let us hope but temporarily suffered. You were summoned here and impaneled and you have carefully proceeded to the performance of your duties as a Grand Jury. Had the legality of your organization been sustained there is no doubt that you would have accomplished a great work—one sincerely desired by all the good people of this State. You have during the whole of your time been embarrassed by concerted assaults made upon the legality of your organization. Of course you have been impeded and interrupted; you have not had the opportunity to thoroughly accomplish the work you had in hand, but your coming here, has not been without good results already accomplished, and others yet to follow. In the meantime for what you have done, in spite of these obstacles, and done so well, I tender you the sincere thanks of the Court and as I believe of the good people of California; and in obedience to the expressed views of the Supreme Court in the Bruner case, you are now discharged from farther attendance.

Official copy.

VERNON,
Reporter to the Court.

LETTER OF EX-CHIEF JUSTICE JOHN CURREY.

[The article printed below was written by Judge John Currey while spending the holidays in the country, and sent to his friend, Judge A. P. Catlin of Sacramento, who, in acknowledging its receipt, expressed his concurrence in the opinion of Judge Currey upon the subject considered, adding: "I think the article should be published. Your position cannot be assailed; nobody will attempt it. The public needs such a clear and brief statement of the question and its inevitable conclusion."]

Was the Grand Jury impaneled in August last by Judge Wallace of the Superior Court of San Francisco, a legally constituted Grand Jury? The Supreme Court has answered this question, in the Bruner case, in the negative, and law-abiding people acquiesce in the judgment, though there are many who do so with misgivings as to its correctness. The question is one of great public importance and interest and therefore is still open to fair discussion.

In my judgment the whole subject is determined by the Code of Civil Procedure, and in the main by a proper interpretation of Section 226 of that Code, and particularly by the second alternative provisions of the section. The Code of Civil Procedure contains within itself a complete system for the formation and impanelment of juries—trial juries and Grand Juries. Sections 241 and 242 provide how Grand Juries must be drawn. The first of these sections prescribes the steps to be taken in the formation and impanelment of Grand Juries. The number to be drawn, in the first place, must not be less than twenty-five nor more than thirty. The number determined upon must be drawn from the Grand Jury box. This being done, the next step is to make a list of the names drawn, which list must be certified by the clerk of the court. The list is then, by Section 219, to be placed in the hands of the Sheriff, and Section 225 provides that "the Sheriff, as soon as he receives said list or lists of jurors drawn, shall summon the persons named to attend the court," etc. Thus it appears that a Grand Jury drawn and properly listed must be summoned by the Sheriff. Section 242 provides that "Whenever, of the persons summoned as Grand Jurors, and not excused, nineteen are present, they shall constitute the Grand Jury. If less than nineteen are present the panel may be filled as provided in Section 226 of this Code." So far everything is plain.

Provisions of the Code.

The record and proofs in the Bruner case show that only ten jurors were obtained from the twenty-five names drawn from the Grand Jury box, leaving nine to be supplied to complete the panel. Thus the contingency came to pass in which it became necessary to fill the panel as provided in Section 226 of the Code, which reads as follows:

"Whenever jurors are not drawn or summoned to attend any court of record or session thereof, or a sufficient number of jurors fail to appear, such court may order a sufficient number to be forthwith drawn and summoned to attend the court, or it may, by an order entered in its minutes, direct the Sheriff or an elisor chosen by the Court forthwith to summon so many good and lawful men of the city and county as may be required, and in either case such jurors must be summoned in the manner provided in the preceding section." The preceding section (225) prescribes the manner of summoning trial jurors which is to be observed by the Sheriff or an elisor upon whom the duty of the summoning of juries may devolve.

Section 226 provides two ways for the completion of a Grand Jury in the condition of things in which Judge Wallace found himself by reason of the failure to obtain more than ten jurors from the

first twenty-five names drawn. As Judge of the Superior Court having in charge the duty of completing the work of impaneling the Grand Jury, it became necessary for him to proceed until a completed Grand Jury should be obtained. To do this two ways were presented by the section above quoted, each of which was as lawful as the other, and either of which the Judge was at liberty to adopt. He adopted the mode last mentioned in said section, as he lawfully might do. No one can gainsay this. Had he adopted the mode first mentioned in the section he would have caused to be drawn from the Grand Jury box the needed nine jurors whose names would have been listed, and the list certified and delivered to the Sheriff to be summoned as required by Section 225, without any direction or command from the Court. Having elected to adopt the alternative mode of filling the panel, it became the duty of the Court to make an order and enter it in its minutes, *directing* the Sheriff, *or* an elisor chosen by the Court, to *forthwith* summon so many good and lawful men of the city and county of San Francisco to serve as Grand Jurors, as were required, which, in the case before the Court, was nine.

METHODS OF FILLING THE PANEL.

It is worthy of notice here that the last-named mode of filling the panel is unlike the first provided by Section 226, as to the person or officer competent under the law, to summon the jurors required to fill the panel. In the contingency of adopting the mode first mentioned in Section 226 the Sheriff is authorized by the Code itself to summon the jurors named in the list prepared and certified and placed in his hands; but not so, if the Court adopts the alternative mode provided by said section, because it is therein declared that the Court may, by order entered in its minutes, *direct* the Sheriff or an elisor chosen by the Court, to summon, etc. Here it is seen that the Sheriff, if he be directed to summon, etc., *derives* his authority to perform such services by *appointment* of the Court by and through its order, as much so as the chosen elisor *derives* his *authority* from the Court by and through its order, so that the necessity of an *affidavit* as a basis of the order appointing an elisor and directing him to summon the good and lawful men required to complete the panel, is not found in the section of the Code here referred to, nor elsewhere in such code nor in any other code. Such an affidavit, showing that the Sheriff and Coroner were disqualified, could serve no useful purpose and its *recital* as the foundation of the order would be wholly idle and irrelevant.

The special and independent provision of Section 226, requiring the Court by its order, entered in its minutes, to appoint either the Sheriff or an elisor chosen by the Court, and requiring by the order itself, the one so appointed and named in the order to forthwith summon the needed number of good and lawful men, to fill and complete the panel, is especially significant.

The Court has the authority to appoint and direct either the Sheriff or chosen elisor to summon the needed number to complete the panel. Whichever of the two the Court appoints and directs is, by the order, invested with authority to perform the service directed. He derives his authority, not from the statutes which apply generally, investing the Sheriff with authority to serve and execute process, but from the Court acting *independently by authority conferred by the last alternative provision of Section 226.*

As already observed the Code of Civil Procedure contains within itself a complete system for the formation and impanelment of Grand Juries and it should be regarded as conclusive on the subject. If anything beyond the express provisions of this code in relation to the formation and impaneling of juries were necessary to make it exclusive of the Political Code, to which the Supreme Court has referred in support of its view of the question, it is found in Section 4 of the Civil Procedure Code, which declares that, "this code establishes the law of the State respecting the subjects to which it relates."

THE POLITICAL CODE.

The Political Code has nothing in it in relation to the formation and impanelment of juries. It does, however, define the duties of the Sheriff and Coroner, and provides in what cases the Coroner shall perform the duties appertaining to the Sheriff; and it provides further, in case of the disqualification of both Sheriff and Coroner in a particularly specified case, to perform the duties properly belonging to the Sheriff, and the fact of such disqualification is made to appear by affidavit, that thereupon the Court may appoint an elisor to perform such duties. This provision of the Political Code, the Supreme Court hold must be read in *pari materia* with the particular part of Section 226 of the Code of Civil Procedure,

under which Judge Wallace made the order appointing Henry Scott elisor and directing him to summon juries, etc. Whatever application the provision of the Political Code may have in general to cases which may arise under portions of the Code other than the last alternative part of Section 226, it is not important now to consider. That it has no application to the part of Section 226 here referred to seems to me to be too plain to admit of any doubt.

The Supreme Court hold that the official cognomen of the temporary officer, Henry Scott, is not warranted by the legal definition of the name or word elisor, because not justified by an affidavit showing to the satisfaction of the Court or the Judge thereof, the disqualification of the Sheriff to perform the service required. It seems to me that this is refining to a degree beyond the rules of just criticism. The name Elisor is given to the temporary officer whose duty in the particular instance, is to perform a service, which in its general character, is of the nature of duties which usually devolve upon the Sheriff, and which he, the Elisor, by authority of his appointment performs instead of the Sheriff. Be this as it may under the most rigid rules of criticism, the name Elisor, if a misnomer, is well defined in Section 226 by the duty imposed upon the temporary officer, which is unique in character. The second part of Section 226 is plain and unambiguous, and where a statute is plain and unambiguous there is no room for construction. This is axiomatic law.

The Question of Power.

It is to my mind unreasonable to say that the omission of any mention of the Coroner in the second provision of Section 226, was a *casus omissus*. If it had been, the long time which has elapsed since the Codes became the law of the State, has been ample for a cure of the omission by legislative amendment. The fact that the Coroner is not mentioned is in itself a significant circumstance, showing that the part of the section here referred to was intended to provide a remedy against inconveniences, which, without it, would prove in the administration of the law, an ever-recurring hindrance and embarrassment.

The wisdom of the law-making power in providing a course of proceeding so simple and effective in the administration of justice, is strikingly apparent; for it is often the case that the Sheriff and his deputies, if he have deputies, are so engaged while the Court is in session, that it is extremely inconvenient and sometimes impossible for him or them to promptly attend to the duty of summoning *forthwith* proper jurors to fill the vacancies existing in the panel of juries, and especially is such the case in the country counties of the State of large territorial extent, where the necessary number to fill the panel is to be obtained from localities many miles away. Besides this the Sheriff may be incapacitated from attending to the duties of his office by sickness or casualties quite unforeseen by himself, and yet foreseen by the law-makers as possible and even probable events, which happen in the course of human experience, against the evils of which they have wisely and effectively provided by investing the Court with authority to appoint either the Sheriff or an elisor, the officer for the performance of the needed service specified.

It is said by some that such power in the hands of the Judge is a dangerous power. If so, it is because it can be abused. Is the power in the hands of the Judge more dangerous than in the hands of the Sheriff? If we cannot trust our Judges whom can we trust?

If my reading of the Codes be correct and my exposition of them be sound, it follows that the appointment by the Superior Court of an elisor, and directing him to forthwith summon, etc., was within the law, and that the Grand Jury impaneled and sworn was a legally constituted Grand Jury.

John Currey.

Creek Farm, Solano County, December 31, 1891.

San Francisco. Engineers

18

PROGRESS REPORT

OF THE

ENGINEERS IN CHARGE

TO DEVISE AND PROVIDE A

SYSTEM OF SEWERAGE

FOR THE

City and County of San Francisco

FOR THE

Compliments of

C. E. Grunsky

and

Marsden Manson.

88 Flood Building,
San Francisco, Cal.

SAN FRANCISCO:
BOSQUI ENGRAVING AND PRINTING COMPANY.
1893.

REPORT

OF THE

ENGINEERS IN CHARGE

TO DEVISE AND PROVIDE A SYSTEM OF SEWERAGE.

SAN FRANCISCO, July 15, 1893.

To the Honorable, the Board of Supervisors
Of the City and County of San Francisco—

GENTLEMEN: We submit herewith a progress report covering the work done by the Board of Engineers as finally organized on August 27, 1892, under resolution No. 6612 (Third Series), and that of the Engineers in charge to devise and provide a system of sewerage, appointed by Resolution 8294 (Third Series), together with a careful compilation of official street grades in the form of a supplement.

Very respectfully,

MARSDEN MANSON.,
C. E. GRUNSKY,
Engineers in Charge to Devise and Provide Sewer System.

TOPOGRAPHICAL FEATURES

OF THE CITY AND COUNTY OF SAN FRANCISCO.

San Francisco is built on the peninsula lying between San Francisco bay and the ocean. It covers the entire northern portion of this peninsula fronting westward upon the Pacific ocean, northward on the ocean, the Golden Gate

and the bay, and eastward on the bay. Its southern boundary is an east and west line from ocean to bay, lying about seven miles south from the Golden Gate.

The exterior form of the city may be described as an irregular square with sides nearly conforming to the cardinal directions except that the central portion of its northern front juts out at Fort Point beyond a right line, and that its western and eastern fronts bear somewhat east of south instead of due south.

The spur of the Coast Range Mountains, which has its northern terminal at the Golden Gate has no point within the city rising to the dignity of a mountain, although several gracefully-rounded peaks, Las Papas or Twin Peaks and Blue Mountain, near the center of the city, rise to a height of over nine hundred feet.

The peninsula spur of the Coast Range divides the city, as above described, into two main water sheds, of which one sends its drainage toward the ocean, the other toward the bay. The dividing line between these two slopes enters the city limits from the south a little west of a median line, and holds a quite direct course to Fort Point.

The lowest points of this summit are over 200 feet high. The southern division of the Southern Pacific Railroad and the Mission or County Road cross the same south of Twin Peaks; parts of Golden Gate Park and Richmond lie upon the flat top of the summit north of this central group of hills.

The principal spurs from this peninsula backbone subdividing the eastern water-shed are: Hunter's Point ridge, to the south of which lie two small valleys opening toward the bay, of which the southernmost, Visitacion Valley, is partly in San Mateo County; Bernal Heights, between the two branches of Islais Creek; the Potrero hills, which are barely connected with the main ridge by a slight swell in the ground; and the Northern Ridge, terminating in Rus-

sian and Telegraph Hills, on the northeastern bay front of the city.

The western water-shed is subdivided by the Point Lobos spur of hills and by the flat-topped Ocean House ridge into three drainage basins, of which the northernmost is tributary to Mountain Lake and Lobos Creek; the second embraces a region of shifting sand dunes extending well up on the western slope of the Twin Peak Hills, and the third sends its waters into Laguna de la Merced.

The several spurs of hills which thus establish a number of natural drainage districts, in most cases terminate rather abruptly. The terminal group of hills on the Point Lobos ridge rises to an elevation of 330 feet, one of the highest of these hills being only about 1,000 feet from the shore line; on the Fort Point ridge, about a mile south of the Golden Gate and only a quarter mile from the ocean shore, is a prominent elevation over 400 feet high.

The Presidio Heights, near the point where the Northern Ridge leaves the main ridge, have greatest elevations of 300 to 380 feet.

Lafayette Square rises to a height of 380 feet; Clay street hill is 360 feet high; Russian hill is 370, and Telegraph Hill is over 290 feet high. The lowest point on the spur which extends northwesterly from Russian Hill and terminates at Black Point is about 90 feet high, and Black Point itself is 100 feet high. On the Potrero Hills are points nearly 340 feet high, and on the Hunter's Point ridge several hills rise to over 250 feet. Railroad Avenue crosses this ridge at an elevation of 60 feet, and San Bruno Road at 60 feet. The spur extending eastward from the Hunter's Point ridge, near the south line of San Francisco, leaves the main ridge at an elevation of 550 feet. It is crossed by the San Bruno Road at an elevation of 140 feet, and terminates in a hill whose top is nearly 500 feet high.

Bernal Heights rise to an elevation of over 490 feet;

Buena Vista Peak is nearly 900 and Lone Mountain nearly 600 feet high.

Between the several ridges or spurs of hills, as above mentioned, lie shallow, or broad, flat gorges opening out upon the bay or ocean. The basin south of the Point Lobos ridge has no well defined line of drainage. Irregular sand dunes, formed of wind blown sediment from the beach, form a broad, barren slope to the ocean.

The drifting sands have been carried over the main peninsula ridge to the northward of the Point Pinos group of hills, and, approaching both sea ports at Lone Mountain, formed lodgement in a broad belt extending eastward and southeastward across the peninsula to Mission Bay, and to lesser quantity on the southern slope of the northern ridge.

The sand from the northern beach westward of Black Point has shifted continuously and northerly, piling up great sand dunes on the southward of Black Point in the vicinity of Lobos Park, and overlooking on the western slope of Russian Hill and the northern slope of the northern ridge.

Hillocks and hollows have been formed over portions of the site of the city of various sizes and irregularities. At points where the surface has not been covered with sand a clay and gravel subsoil is found.

The northern and eastern shore of the city is indented by arms of the bay, which extend well within the ultimate shore line as projected for the city. But the built-up area of the city is surrounded these are filled in, but the districts thus reclaimed are low and flat, yet in many cases of great value. That part of the city east of Montgomery and south of Clay street is largely of this character. Mission Bay has been nearly closed against tidal waters, but the extension of the built-up area over its surface has not been urged because there has been ample opportunity for the growth of the city in other directions. Ground grades in the Mission Bay district throughout an area of about 150 acres

have been established at City Base (City Base being 6.7 feet above an ordinary high tide). Islais Creek, south of the Potrero Hills, opens to the bay through broad mud flats covered to the extent of about 500 acres by the city. As far inland as Fifteenth avenue and San Bruno road, about two miles from the water front, street grades have been established as low as one foot below City Base.

South of Hunter's Point an area of seven to eight hundred acres within the city limits extends out into the bay over low mud flats which will some time be filled to about City Base.

On the northern front of the city tidal area and bay surface that will fall within the proposed seawall line aggregate about 270 acres.

It is interesting to note that, although San Francisco is built on hills and undulating ground rising high above the level of the sea, it embraces within its limits several thousand acres of salt marsh and bay surface, portions of which have been filled in and are built upon, but by far the greater portion of which remains to be reclaimed in the ultimate growth of the city.

The area of San Francisco, including the lands already reclaimed and to be reclaimed, estimated to the officially established water front line, is 30,680 acres (about 48 square miles). The area already built upon covers about 8,000 acres, covering almost the entire northeastern quadrant of the city as above described and extending in a long narrow strip several miles westward from the densely populated region, along Point Lobos avenue and neighboring streets; also extending southward along the principal lines of travel, San Bruno Road and Mission Road, with occasional spots, as in the Potrero and South San Francisco, where an aggregation of residences and other buildings marks a nucleus of suburban growth.

The built up or populous part of San Francisco can readily

Buena Vista Peak is nearly 520, and Lone Mountain nearly 480 feet high.

Between the several ridges or spurs of hills, as above referred to, lie valleys, or broad, flat slopes opening out upon the bay or ocean. The basin south of the Point Lobos ridge has no well defined line of drainage. Irregular sand dunes, formed of sand blown eastward from the beach, form a broad, broken slope to the ocean.

The drifting sands have been carried over the main peninsula ridge to the northward of the Twin Peak group of hills, and, separating into two parts, at Lone Mountain, found lodgment in a broad belt extending eastward and southeasterly across the peninsula to Mission Bay, and in lesser quantity on the southern slope of the northern ridge.

The sand from the northern beach westward of Black Point has drifted southeasterly and easterly, piling up great sand dunes to the southward of Black Point in the vicinity of Lobos Park, and terminating on the western slope of Russian Hill and the northern slope of the northern ridge.

Where sand has thus drifted over portions of the site of the city it covers clays, shales and serpentines. At points where the surface has not been covered with sand a clay soil predominates.

The northern and eastern shore of the city is indented by arms of the bay, which extend well within the ultimate shore line as proposed for the city. As the built-up area of the city is extended these are filled in ; but the districts thus reclaimed are low and flat, yet in many cases of great extent. That part of the city east of Montgomery and south of Clay Street is largely of this chaarcter ; Mission Bay has been nearly closed against tidal waters, but the extension of the built-up area over its surface has not been rapid because there has been ample opportunity for the growth of the city in other directions. Street grades in the Mission Bay district throughout an area of about 150 acres

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The built up or populous part of San Francisco can readily

be subdivided into districts of two characters—the one class embracing portions of the city on sloping ground, hill sides and hill tops, at such elevations that they can be readily drained by gravity flow, the other embracing the low, flat districts for which it is difficult or impossible to provide satisfactory drainage without recourse to pumping. But when thus segregated into districts the several districts of each class are not contiguous; their drainage cannot easily be combined, and the solution of the drainage problem is rendered much more complex than if there were only one instead of many drainage basins.

The extent of the several water-sheds for whose drainage provision is to made may be preliminarily noted as follows:

*Visitacion Valley	990 acres.
Bay View district	1,220 "
Islais Creek district	3,900 "
Precita Creek district	1,730 "
Mission Bay district	5,860 "
Yerba Buena Bay district	430 "
North Beach district	320 "
Washerwoman's Bay district	1,030 "
Presidio district	930 "
Lobos Creek district	2,120 "
Ocean Beach district	5,650 "
*Laguna de la Merced district	3,350 "

Each of these areas covers the entire space from summit to summit of dividing ridges and includes bay or ocean frontage. Being intended for general classification purposes only, a more detailed subdivision is not necessary at this time.

The Islais Creek district should really embrace that of Precita Creek, which is tributary to the former, but as the junction of the two creeks is at the margin of the salt

*North of the County line.

marsh and Bernal Heights, between the two, forms a very prominent line of division, they have been enumerated separately.

In the discussion of volumes of flow from the Islais Creek district and from the Laguna de la Merced district, the fact is not to be lost sight of that provision must be made for natural drainage from portions of their watershed beyond the southern boundary of San Francisco. This is true also, though to a lesser extent, in the case of the Visitacion Valley district.

The problems of drainage for these several districts are distinct for each, but can to a certain degree be combined.

As it is not proposed at this time to discuss these several problems in all their bearings, we shall confine ourselves to such descriptions as are necessary to understand present conditions and facilities for drainage.

ISLAIS CREEK DISTRICT.

There being no sewers in use in Visitacion Valley and Bay View districts, which are sparsely settled regions, we pass at once to the Islais Creek district.

Mission road and San Jose road both lie within this district from points near Holly Park to the County line. The open waterway of Islais Creek is the drainage channel of this district and into this creek a few local sewers deliver their flow.

The creek takes a course through private lands, some of which have not been subdivided into blocks. When they are to be subdivided and streets are to be laid out through them, special attention should be given to the matter of drainage because it will be necessary to so locate the streets that a proper alignment of the sewers will not be interfered with.

Islais Creek receives water from a small portion of the northern slope of San Bruno Mountain, south of San Fran-

cisco, from the northeastern slope of the Twin Peak groud of hills and from the entire slope of the Bernal Heights. It drains a suburban region of considerable importance that is rapidly being built up.

The main creek is formed by the junction of two branches of which the northern branch descends from the Twin Peak slopes, crosses under the San Jose road and the Southern Pacific Railroad track, and meets the southern branch in the depression between San Jose road and the County road. The creek flows thence in a northeasterly direction to the base of the western slope of Bernal Heights; thence gradually opening to a broad expanse of tide marsh, sweeps around the southern and eastern base of these hills in a long curve, and, receiving Precita Creek from along the northern base of these hills, terminates in the tidal basin that has been formed by the grading of Kentucky street from the Potrero to South San Francisco.

Islais Creek is by statutory enactment declared to be navigable "from Fraconia landing, near Bay View turnpike, to its outlet into the bay of San Francisco, and thence easterly along the southerly line of Tulare street to the City water front on Massachusetts street, of the width of the channel of said creek." Notwithstanding this statute Kentucky street has been filled across the creek and across Tulare street, and the connection of the land-locked tidal basin, west of Kentucky street, with the bay, is confined to a large wooden box or culvert under Kentucky street.

This basin is the recipient of the flow of Islais Creek and of Precita Creek, which near its junction with Islais Creek receives the discharge of Army street sewer.

Just above Franconia Landing the Islais Creek tide marsh is crossed by the extension of Fifteenth avenue, the official grade of which has been established at one foot below City Base, or only 5.7 feet above ordinary high tide,

although, as already stated, this point is about two miles in a direct line from the proposed water front of the city and is one mile and a quarter above or west of Kentucky street. Kentucky street grades, across the Islais Creek marsh lands, are at City Base. It is very evident, therefore, that the low grades on Fifteenth avenue and San Bruno road, still further west, where they are fixed at about City Base, were ill-advised and need revision.

The Islais Creek tidal basin will, as population in the water-shed tributary to it increases, be increasing in foulness from year to year, and unless systematic treatment of the drainage from the districts tributary to it is effected, the history of filth accumulation in Mission bay and Channel street will there be repeated. At the point where Mission road crosses Islais Creek, two sewers, one from the northeast along this road and the other from the southwest, discharge through the top of the masonry culvert in which the creek flows under the road embankment. The upper portions of the creek are fouled by refuse from the truck gardens, pig-pens and corrals on its banks and local sewage delivered to it in open ditches or temporary drains.

PRECITA CREEK DISTRICT.

Precita Creek water-shed is separated from the Mission Bay district by a spur from the northeastern slope of Twin Peaks, which has its last prominent eminence at Twenty-first and Sanchez streets, by the Potrero hills and by the gentle swell at the head of the Mission Valley, which turns Precita Creek southward to an outfall between Potrero hills and Bernal Heights into Islais Creek. As a waterway the creek, except throughout the last half-mile of its course, has been supplanted by Army-street sewer, but to the north of Army street there is still much low wet marsh ground, some of which is kept foul by the outflow of local sewers,

the most notable of which is Potrero avenue sewer, which terminates at Twenty-fifth street.

At the present writing Army street sewer discharges its flow through a break in the side of the sewer just east of San Bruno road in the Precita Creek channel, whence after spreading out over several acres of the marsh land it reaches the main channel of Islais Creek.

The break in Army street sewer here referred to is in the side of a wooden box which was put in as an extension of the brick sewer that terminates at San Bruno Road. This wooden box has been carried along Army street to Kansas street and thence to Marin street, in which street it terminates at a point about 50 feet east of Kansas street. During the storms of last winter, which caused a settling of the fill on top of this wooden sewer, it was crushed at several points and the accumulation of pressure due to the stoppage of flow was probably the cause of the break near San Bruno Road.

Some temporary relief to existing evils can be afforded in this vicinity by extending the brick sewer several blocks and by carrying a small box sewer with storm water overflow at a suitable point, well out toward the main waterway of Islais Creek; but the planning of a permanent system of outfall works, requiring as it does a revision of grades, will involve much more study than we have yet been able to devote to this district.

MISSION BAY DISTRICT.

From Potrero hills on the south to the Northern ridge on the north, and extending westward to the Twin Peaks, is a drainage basin of large extent, embracing more than 4,000 acres, most of which is densely populated, including as it does the heart of the city, the entire Mission and the entire Western Addition. All the drainage of this region, except small portions intercepted by Brannan street sewer,

are discharged into the open waterway of Channel street through the feeders of the Channel street sewer, through Seventh, Sixth, Fifth, Fourth and Third street sewers, and through small sewers in the Potrero. The discharge from these sewers, representing as it does more than one-half of the drainage of the built-up portions of the city, ebbs and flows in Channel street, impregnating the banks of the channel and the mud in its bed, and coating the piles under the wharfs with an indescribable filth. If there were a large tidal area at the head of the open waterway of Channel street there might be some hope of having a part of the filth carried to the bay at each ebb tide, but the tidal area is inadequate, and by reason of the rapid encroachment of street improvements it will soon be obliterated entirely. The situation has been made still worse by the dumping of garbage upon Mission Bay lands, which still continues. The concentration of filth in Mission Bay and Channel streets has been a fruitful source of complaint in the past.

Referring to the same subject, in 1874, Henry Gibbons, Jr., M. D., in his official report as Health Officer, says: "Washerwoman's Bay, Mission Bay and Mission Creek are constantly augmenting in filthiness. The difficulties in the way of remedying this evil seems almost insurmountable, although effort has been made, and some work has been done in Mission Bay. It is a happy circumstance for our people that this bay is not to the windward of the city. If anyone doubt it let him ride over Brannan or Fourth Street Bridge on a warm day when the tide is low. In regard to Mission Creek much might be said. Few seem to know its extent or its filthiness. From away beyond Eighteenth street, where it originates in a pond, down past Sixteenth street, at its intersection with Harrison—the very recollection of which locality by a person who has visited it, is almost sufficient to sicken—to the outlet in Mission bay and even beyond, it smells to heaven with a loudness and per-

sistence that the strongest nostrils may not withstand, and the disinfectants of a metropolis could not remove. If by any means it were possible to draw sufficient public attention to these serious evils to cause their speedy removal, I would feel that a better work in the interest of the public health had been accomplished than all else combined."

It is only necessary to add to what Dr. Gibbons has so forcibly said that since the above report was made by him, Channel street sewer has been constructed to Ninth street its present termination, and the Mission creek lands were in large part filled in ; but that to the eastward and southeastward of Ninth street the accumulation of filth has been allowed to continue throughout the nineteen years that have intervened, and the discharge of the sewers into the open waterway of Channel street still continues.

The principal sewer of this district is the large Channel street brick sewer, which at its lower end, near Ninth street, is eleven feet wide and eight and one-half feet high. This sewer following closely the former alignment of Mission creek intercepts the flow of the several sewers which before its construction discharged into the creek, notably, Eighteenth street sewer, of which Channel street sewer may be said to be a continuation, Seventeenth, Sixteenth, Fifteenth, Fourteenth and Eleventh street sewers, all of which are elliptical three feet by five feet sewers of the usual type. Of these sewers those on Fourteenth and Fifteenth streets receive the flow from that portion of the Western Addition drained by the Fell street system. Nearly all the rest of the sewage from the Western Addition reaches the Eleventh and Seventh street sewers, of which the former discharges into Channel street sewer and the latter, crossing Brannan street sewer, has its outfall point in the open waterway of Channel street. Brannan street sewer is connected at its upper end, near Tenth street, with the Channel street sewer, and may be considered a relief outlet of

the latter. It is a brick sewer, nine feet wide, seven feet high, which intersects the several sewers of Eight, Seventh, Sixth, Fifth and Fourth streets, and intercepts Ninth street sewer. At Rincon Hill near First and Second streets this sewer was constructed as a tunnel, and its invert is about thirty-eight feet below official grade at Second street.

The grade of the Brannan street sewer does not conform closely to the elevations of the bottoms of the several sewers which it intersects. These are generally from one to three feet higher than the bottom of the Brannan street sewer, which thus becomes the recipient for the sewage from the entering sections of the sewers. The outgoing sections lying between Brannan and Channel streets may be regarded as relief outlets. As a matter of fact there is generally so much silt and sludge in the Brannan street sewer that the non-conformity of grade is in most cases obliterated and partition of the sewage flow in Brannan street sewer occurs at nearly every street-crossing.

The outfall of Brannan street sewer is under the wharf at First street. During the ebb flow, the sewage delivered by it into the bay is crowded inshore under the wharves to the northward, by the outflow from Channel street. At flood tides, it is carried along shore southward and westward into Channel street.

Aside from the principal drainage lines of the Mission Bay district, there are sewers on Mission, Howard and Folsom streets, each of which has an independent outfall to the bay under the wharves or piers of the water front.

The sewage from the northern slope of the Potrero hills is either dumped on the Mission mud flats by means of small temporary sewers, or reaching the Solano street sewer it is delivered into the bay near the Union Iron Works.

YERBA BUENA BAY DISTRICT.

That low, flat portion of San Francisco north of Market

street and east of Montgomery street, with the slopes of the hills westward to Jones street and northward to the summit of Telegraph Hill, is the Yerba Buena Bay district. It is relatively a small district but it covers the most important business section of the city. This, together with the fact that about 120 acres of this district have been reclaimed from the bay, make the sewerage problem for Yerba Buena Bay district one of particular interest and importance.

It is here in this old part of the city that the examples of large intersecting sewers are most striking. San Francisco's Chinatown lies in the center of this district on the slopes whose sewage and silt contribute to the deposits annually piled up in the many sewers of this district on light gradients.

To describe the present system of drainage it is only necessary to state that every east and west street from Broadway to Sutter has its three feet by five feet brick sewer, and that there is a similar north and south sewer on almost every intersected street and in the lower part of the district, nearly every alley, court and place has a similar large brick sewer. Until within a few years there was an outlet for the sewage from these sewers at the foot of each east and west street and at the foot of Market street. Now, however, Market-street sewer has been extended in the form of a wooden box sewer northward along East street to the foot of Washington street. It intercepts Sacramento and Clay street sewers. Washington and Jackson street sewers are in a similar manner turned southward on East street and are also connected with the Washington street outfall.

As Market street sewer intercepts the several brick sewers of the east and west streets from Geary to Sacramento street, a considerable flow of sewage is concentrated at the Washington street outlet, which is not at the pier head, but

at the low-water line under the wharf. Similarly, the sewers in Pacific and Vallejo streets have been turned into Broadway, and there pass through the sea-wall to the low-water line. Many of the sewers in this district are in comparatively good condition. The construction of at least one-half of them has been needless. All of the large sewers in the flat portions of the district contain much slush and filth which cannot, under present conditions, be removed by flushing and which defies the storms of winter.

Utilizing present sewers to the greatest extent possible, particularly for the storm-water flow, it will not be difficult to devise a separate system for sewage only, in the flat portion of this district, and with this combined and relatively inexpensive system, and an interception of the sewage flow from higher portions of the district to meet every requirement. The utilization of the present sewers for storm waters will, however, involve a remodeling of many, the reconstruction of others and abandonment of many of those now on north and south streets. It will also necessitate the construction of one or more intercepting sewers and the introduction of flushing systems and outfall works that will control tidal inflow and prevent deposits or silt in these sewers.

NORTH BEACH DISTRICT.

The North Beach District includes the bay frontage from Telegraph Hill to Black Point, with Russian Hill and Clay street Hill marking western and southern points of its extent. Here, as well as elsewhere in the city, the sewers have been constructed without system. The district as a whole is favorably situated for thorough drainage, the only difficult portion being the long extent of bay frontage.

At present the principal sewers are those on Larkin, Hyde, Mason and Powell streets, which terminate at the water line of the Bay.

WASHERWOMAN'S BAY DISTRICT.

From the Presidio Heights eastward to Russian Hill and Black Point, the northern slope of the northern ridge is toward that part of San Francisco Bay known as Washerwoman's Bay, which gives the name to this district. Its peculiarity is the steep descent from the ridge at its southern limit and the large extent of the comparatively flat marginal tract, some of which has not yet been reclaimed from the waters of the Bay.

In this district the building area has been extending gradually downward from the hillsides toward the Bay. Sewers for a long period of years terminated in landlocked basins or at the inshore limit of the tidal marsh, and it is only in the last decade that some relief has been afforded by extending some of the principal sewers to the bay shore.

The outfall points of this district at present are at the bay shore on Pierce street, on Steiner street, on Fillmore street under the wharf, and on Webster street.

The sewage of the Steiner street sewer, and to some extent that of the Pierce street, is being utilized during the spring and summer months for the irrigation of Chinese vegetable gardens located near these streets north of Chestnut street.

LOBOS CREEK DISTRICT.

The plateau region northward of Lone Mountain ridge, westward of First avenue and southwestward of the Presidio ridge, is drained by Lobos Creek. All of Richmond lies within the water-shed of this creek. This water-shed, with the ocean frontage from Fort Point to Point Lobos is included within the limits of the Lobos Creek district.

Mountain Lake is a feature of this district. It lies just within the Government Reservation. The natural drainage channel of the district is Lobos Creek, a stream of small

though perennial flow, yet of sufficient importance to have been made a source of water supply for the city, which is still in use, though the time is at hand for its abandonment.

The only sewers now in this district are those of the Richmond tract and those of the southwestern slope of Presidio Heights. These sewers have no outlets ; they terminate in the sand. The Lake street, or main sewer of the Richmond district, has its lower end at Twentieth avenue, and silt and filth have been accumulating in it during the last two years without chance of escape, except by infiltration through the walls of the sewer into the sands in which it is built. Arrangements are now being perfected by the Board of Supervisors, and bids are to be called for at once extending this sewer to an outfall on Baker's Beach.

Another sewer terminates on California street near Fifth avenue, which, like the main from the Richmond district, has no outlet though receiving sewage from the southwestern slope of Presidio Heights, where population is rapidly increasing.

OCEAN BEACH DISTRICT.

The Ocean Beach District, as its name implies, fronts westward upon the Pacific Ocean. Its extent is southward from the Point Lobos ridge to near the Laguna de la Merced. It has no natural drainage lines across the irregularly piled up sand drifts, the only well defined water courses being in its southwestern portions, between the hills of the Twin Peak group.

There are no sewers in this district, but the necessity for devising a plan of sewers for at least portions of it is daily becoming more urgent, as the area just south of Golden Gate Park is being built up, and the building area will no doubt be rapidly extended.

Here, however, as in other parts of the city, surveys should at once be made on the basis of which an intelligent

study of grades can be made, and the correct lines of the several main sewers can be determined.

LAGUNA DE LA MERCED DISTRICT.

Of the Laguna de la Merced District but little is to be said at this time. It is at present one of the sources of water supply for this city. It is sparsely settled, and is in no immediate need of improved drainage facilities, except in its northeasterly portions, at and near Lakeview. But its drainage must be taken into consideration in connection with a determination of the methods to be employed in disposing of the sewage from this and the Ocean Beach District.

A considerable portion of the watershed of this district lies south of the county lines, and the ultimate plan of disposing of storm water and sewage in this region must make suitable provision for this district, even though it lies beyond the limits of the city.

THE DISPOSAL OF SAN FRANCISCO'S SEWAGE.

In the case of San Francisco, as in every other city, the first question to be answered in connection with the study of drainage problems is: "How shall sewage be disposed of?" To some extent it is true, the answer to this question depends upon the general topographical features of the district to be drained and upon the difficulties in the way of collecting sewage, but generally it can be answered without regard to special features of the collecting system.

There are but rarely great difficulties to be overcome in concentrating sewage flow at one or more points where it is to be delivered into a recipient or otherwise treated.

As San Francisco is subdivided by its hills and ridges into many districts, and has the bay and ocean to the east, north and west, toward which these several districts send

drainage, it is perfectly natural that original points of outfall should have been and are adhered to until increased population, by causing an accumulation of filth in the vicinity of such points of delivery, compels a modification of the system. By thus adhering to original drainage lines, merely extending them as the city was pushed out beyond the original shore line, this city is gradually being encompassed by a margin of filth deposits.

Separated from large tracts of agricultural lands, as San Francisco lies, the waste matter contained in the city's sewage will probably never be utilized with profit as a fertilizer. There are no large areas suitable for sewage irrigation within easy reach on which to utilize its sewage.

Through the Golden Gate, along the northern part of the city, there is a daily tidal inflow and outflow of enormous magnitude, and there can be no question that when the city has so increased in population, particularly on its eastern slopes, that the volume of sewage is too great to be delivered to the bay in continuous flow at one or more selected points, it will always be possible to concentrate the entire volume of sewage proper for discharge at the most suitable points into the ebb flow.

The necessity for such intermittent discharge which will insure its conveyance far out to sea, and its movement after it has been carried to sea, are matters which we do not intend to discuss at this time, but recognizing the fact that this means of disposal will probably be ultimately adopted, every permanent work now proposed should be so planned that this result can sometime be attained without involving reconstruction of main lines of sewers now necessary.

To correct the evils resulting from a delivery of sewage at the water front, wherever sewers happen to strike the water-line, and to determine, if possible, whether there are any points along the front that offered special advantages

as outfall points for main sewers, whether such points are to be for permanent or temporary use only, it is necessary to make a special study of the direction of drift along the bay frontage of the city. This is being done on the basis of current observations made by the United States Coast Survey in the years 1871 to 1875, and a series of float observations that were made by us during the spring of this year.

As the project of intercepting the sewage of the Western Addition, together with that from the northeastern slope of the Twin Peak hills, by means of a main sewer along Market street to Kearny, along Kearny through Telegraph Hill in a tunnel, and thence to an outfall at or beyond a pier head near the foot of Powell street, will be one of the first and most important to be fully discussed and is likely to be favorably considered, we have made the Powell street pier head one of the starting points for these float observations. Avisadero Point was selected as the locality which it was thought would offer special advantages for a delivery of the South San Francisco sewage into the bay and here also float experiments to enable a special study of the direction of flow were made. It is desirable to have full information concerning the direction of drift at different stages of the tide at the water front of the Potrero and in Mission Bay, and here also the necessary experiments have been made. The results of this work have not yet been digested, but will form an important factor in deciding whether any sewage can be discharged into the bay on the eastern front of the city without becoming offensive to sight or smell, and without becoming a menace to health.

With the several districts defined and outfall points selected it will be possible to determine the required capacity of main sewers and to give them the proper location. These features of the drainage problem and a full discus-

sion of the rainfall, of sewage volumes and kindred matters must be deferred until we can present a comprehensive project.

THE PRESENT SITUATION.

Immediately upon final organization of the Board of Engineers, the investigation of the condition of the sewers now in use in San Francisco was commenced and records were searched to supplement the results of this investigation in order to make this data, which is essential as a basis for the work of the Board, available in a comprehensive and readily accessible form. Entering upon this work of collecting and compiling data with reference to the character and condition of sewers now in use, it was at once found that the records could not be relied on to disclose the size or character of the sewer in any particular street. The information concerning sewer gradients was, we may say, entirely lacking, and the information concerning depths of sewers below street grade was so fragmentary and in such unsatisfactory form as to be of no value whatsoever. Moreover, it was at once found that specifications for sewer constructions were, and had been, general in character, with no special requirements to fit particular cases, except for a few sewers that were constructed for districts and according to plans specially ordered to be prepared for such districts; that the specifications, whether of the general or of a specific character, were not closely adhered to, and were often grossly violated, and that no record was preserved showing what was actually done and to what extent a deviation from plans and specifications had (whether rightfully or not) been permitted by the authorities in charge of sewer construction.

It has heretofore been generally required in the specifications that pipe sewers shall have "openings twenty-five feet apart, sufficiently large to receive a six-inch pipe." As the subdivision of street frontage in the residence portion

of the city is generally less complete than it is understood that the requirement is intended to insure available openings for house connections every fifty feet apart on each side of every gore sewer. Yet, while a few sewers have been constructed under these specifications with but the minimum of the required number of Y's for house connections in place, and others have been accepted as properly constructed although the openings required were not upon alternate sides of the sewer making these open either only fifty feet apart or in no case, however, not even when the specifications were strictly complied with, has a record of the position of the Y's been preserved and the lack of information as to position of openings for house connections is an indication that it has long been customary to disregard these provisions entirely and to make house connections by breaking through the sides of the sewers wherever convenient. Under such circumstances it is not surprising that the necessity for the number of openings prescribed by ordinance but required by specifications is not recognized by contractors, and that believing the Y's useless, as many as possible are omitted.

The general specifications handed down by one set of officers to the next owing many administrations require that "stops must be placed in such manner, format of bulkhead laid out and with the brickwork," etc., yet for years past the manholes have been constructed without stops.

These and other departures from specifications are and have been very frequent in connection with sewer construction in San Francisco, and it is pertinent to inquire why they are possible.

The comprehensive sewer and drainage system for San Francisco has now been under the guide in the matter of sewer construction. We are at this late date charged with carrying out. But even if one had been designed, modifi-

cations of detail due to the extension of streets, changes of street grades and other unforeseen conditions would have to be made from time to time.

The duty of preparing the plans and specifications for sewers required from time to time falls to the City and County Surveyor. He prescribes gradients and exercises control over line and grade. The supervision of construction, however falls to the Superintendent of Streets, whose department is required to compel strict compliance with specifications.

Sewers are constructed either by public or private contract. In case of sewer construction by public contract all proceedings, the calling of bids, the awarding of the contract and the execution of the work are in direct charge of of the city officers.

In the case of sewer construction by private contract, the planning and supervising of the work are in charge of city officials, but the authorities are not concerned in the award of the contract, except that before any private sewer construction can be undertaken, a permit for the work must be secured from the Superintendent of Streets.

Whether done by public or private contract, the work is to conform to requirements prescribed by ordinance and specifications, and it is the duty of the Superintendent of Streets to know that there are no deviations from such requirements. Whether constructed by public or private contract, all sewers in streets that have been finally accepted as improved streets must be maintained and kept in repair at public expense.

The original cost of sewers falls upon the property benefited in proportion to amount of benefit and in proportion to street frontage. In the case of all local sewers, the first cost falls on the property fronting upon the streets sewered.

Although it would appear that by reason of being re-

quired to furnish plans and specifications for each sewer constructed, the City and County Surveyor is interested in knowing that the plans are carried out and that the specifications are complied with, it seems to have become a well established custom for that office to participate in ordinary sewer work only to the extent of giving the contractor line and grade for his work, and of certifying to the fact that the sewer at its manholes, when completed, has a depth below street grade as named in the certificate then issued.

The City and County Surveyor charges fees prescribed by ordinance for his services, and as he personally bears all the expenses of surveys it is natural to suppose that he will endeavor to keep his expenses as low as possible. It is not surprising, then, that when information in his office justifies such a course, he issues diagrams to the contractor with instructions to conform to street curbs for line and grade, or to place the sewer at "10 feet below street grades if connections will allow," furnishing reference points in the latter case from which a skillful contractor establishes his own grade line.

This system of issuing indefinite, unintelligible instructions to contractors, and for the guidance of Superintendents of Streets, prevails to-day, but it is not of recent origin; it has been in vogue throughout many administrations and has led to innumerable defects in construction that will entail great expense to correct.

To the engineering profession the explanation is due in this connection that the office of City and County Surveyor is an elective one, that party politics can be relied on in San Francisco no more than elsewhere to consider qualifications for office a prerequisite to election, and that the responsibility for all sewer work has fallen partly upon the Surveyor and partly upon the Superintendent of Streets. Without such explanation it would indeed be difficult to account for the persistent lack of endeavor to effect a re-

WALL OF CESSPOOL
AT COR. OF VALLEJO & FRANKLIN
SHOWING
CHARACTER OF WORKMANSHIP.

form. The system of municipal administration is at fault, more than the individual officers, and better results will be difficult of attainment until the construction of sewers receives intelligent and honest engineering direction and supervision. In this connection Hon. William Alvord, Mayor of San Francisco, in his address when retiring from office, says :* "If the offices of Superintendent of Streets and Surveyor were united, and the Surveyor allowed the same executive aids which the Superintendent now has, receiving only a salary for his duties, it would be possible to prosecute such works as the opening, grading, paving and sewering of streets according to a comprehensive scientific method and at greatly reduced cost to property holders, who are now assessed doubly and trebly by reason of the many mistakes made in detached improvements. The want of able scientific direction in this department is more especially evident in the matter of sewerage. At present short, isolated sewers are often constructed, without outlet and without reference to ultimate connection with the mains forming part of a well studied, comprehensive system, because such a system has not been commenced or planned."

So lax has been the system of administration in this direction that it is safe to say that Superintendents of Streets have, more frequently than even the several City and County Surveyors, been permitted to prescribe the character and size of sewers to be constructed. The work of sewer construction has moreover been carried forward piecemeal, generally a block or a crossing, rarely a few blocks at a time, according to the temper and inclination of the property holders.

The general specifications for sewer construction being the supposed basis of sewer work, and there being no comprehensive scheme of drainage to adhere to, it has been

* Municipal Reports, 1873-74, p. 640.

perfectly natural for the official in direct charge of sewer maintenance and sewer cleaning to insist upon carrying out his views, even in the matter of determining what kind of a sewer should be constructed in any block or in any street crossing, though in fact the only qualification that could be claimed as justifying the assuming of such a responsibility was practical experience in street matters, and the intelligence and common sense supposed to be a part of the stock in trade of every city official.

Only when it has seemed advisable to carry out sewer construction as a work of benefit to a district, in which case the City and County Surveyor has had an opportunity of making a special charge for plans and specifications, does he seem to have been consulted as to general requirements, and not alone as to line and grade.

The specification for sewer construction, as furnished by the several City and County Surveyors since 1880, have not differed materially from the following, which have been furnished to the Superintendent of Streets by the present Surveyor and which have become a part of public and private contracts for sewer construction, and have rarely been amplified or modified by special requirements.

EXCAVATIONS, ETC.

"The ground along the line of the above described work shall be excavated to the proper depth for the construction of the sewer upon the grade as shown on profiles, or set by the City Engineer. The bottom of the trench to be formed to the exact external shape and dimensions of the sewer, and the trench at the surface to be at least two feet wider than the greatest horizontal diameter of the same. If the soil be of improper nature for a foundation it shall be removed to such depth and width, and in such manner as may be directed by the Superintendent of Streets, and proper material deposited in its place, and all irregularities,

however caused, in the bottom of the trench shall be corrected before constructing the sewer.

"Bracing or shoring shall be used when the same may be considered necessary to prevent slipping or caving of the sides of the trench, and in all cases all such timber must be removed in such manner as to prevent slipping of the sides, and none left unless specially ordered by the Superintendent of Streets.

"Should running quicksand or other treacherous ground be encountered, the work shall be pushed with the utmost vigor, and carried on day and night should the Superintendent of Streets so require. The excavation shall be kept free from water during the construction of work, and no concrete or other work will be allowed to be laid in water, and all work must be kept free from water until the cement has set.

"When the proposed sewer connects with, takes the place of or intercepts any existing sewer, drain or culvert, the contractor will be required to connect such structures with the sewer in such a manner as directed by the City Engineer, and the contractor must also provide for the flow of such sewers and drains interrupted during the progress of the work as directed by the Superintendent of Streets. Under no consideration shall any works be connected by breaking into old work, but the old work must be carefully taken out and the necessary connections properly inserted.

"All materials furnished shall be subject to the approval of the Superintendent of Streets, and all material furnished or work done which in his opinion are not in accordance with these specifications or to his satisfaction, shall be immediately removed and other materials furnished or work done which shall conform thereto.

"No tunneling will be allowed except with the permission of the Superintendent of Streets, and only when it is in order to pass some railroad or to prevent interruption to

important traffic, and the crossings of all main streets shall be bridged over or made passable in such manner as may be directed by the Superintendent of Streets.

"After the sewer has been built, earth or clay, free from rocks, shall be carefully laid in so as not to disturb the work and solidly rammed, or watered and rammed in layers not to exceed nine inches until the work is completely covered to a depth of at least one foot. The trench shall then be filled with dirt in layers not exceeding one foot in depth, each layer being rammed or watered, and rammed until filling is complete. When the excavation is in rock then the trench shall be excavated to a depth of six inches below the otherwise necessary depth, and refilled to the proper bottom for the sewer with good clean sand, carefully packed, on which the sewer shall be laid.

"The material taken from the trench, if clean and wholesome in the opinion of the Superintendent of Streets, may be used for refilling; otherwise the contractor will be required to fill with proper material furnished at his own expense.

"The contractor shall be required to put the street in the same condition after the work is completed as it was previously, the Superintendent of Streets to be the judge thereof, and all surplus material must be removed within three days after the completion of the work.

"Whenever the sewer or any part thereof is above the surface of the ground it shall be protected by an embankment of earth filling, to be carried up in horizontal layers not over one foot thick and of equal height at all times on both sides of the sewer, said embankments when completed to be not less than two feet above the highest point of the sewer, to have a width on top not less than the greatest external horizontal diameter of the sewer and uniform side slopes.

"No work shall be acceped which may be deficient in

any of the requirements of the specifications in consequence of the neglect of any Engineer or Inspector to point out such defect during the construction, and the contractor will be required to make good any imperfect work whenever discovered before the certificate is given.

MORTAR.

"Mortar, whenever used in this work, shall be composed of clean dry sand, mixed in proportion of one part of cement to two parts of sand (these proportions must be measured and not estimated). These must first be thoroughly mixed dry, and then a sufficient quantity of water mixed to just make a rather stiff paste; it will be used an hour after it is mixed, and not at all if once set.

"The cement shall be the best Portland cement, freshly burned and capable of being quickly worked into mortar. All cement must be approved by the Superintendent of Streets before being used on the work, and the contractor shall afford all facilities of inspecting and testing when required either by the Superintendent of Streets or City Engineer. Cement must be thoroughly protected from the weather and ground moisture, and all condemned cement must be immediately removed from the work.

"The mortar must be mixed in tight boxes furnished by the contractor for that purpose. The water must be fresh, clean and free from dirt and sewage. The sand must be clean, sharp, free from loam, vegetable matter or other dirt, and capable of giving good results with the cement.

MANHOLES.

"Brick manholes shall be built along the line of the sewers at such points as are shown on plans, or as the Superintendent of Streets may direct, and shall conform in form, thickness and other respects to the plans on file in the office of the City Engineer and to the following specifications.

"The brick-work to be carried up to proper crown of the street as directed by the Superintendent of Streets, and to be there built round and true, with an interior diameter of two feet two inches, according to the plans. The joints to be neatly struck and pointed on the inside, and the brick-work plastered on the outside with a half-inch coat of mortar.

"Each manhole must be furnished with a cast-iron coping and cover of good quality, free from defects, and similar to those ordinarily furnished, and they must be subject to the approval of the Superintendent of Streets.

CATCH BASINS (Or Cesspools).

"All catch basins are to be paved with two courses of brick, the bottom course to be laid solid, and the upper course to be grouted in with cement, the inner surface to be plastered with a good coat of cement mortar, one-quarter of an inch in thickness.

"Each catch basin to be finished with cast-iron coping pans, etc., of the best quality—the catch basins to be connected with sewer as shown on plans—the outlet pipe to be ten inches in diameter, the inner end trimmed flush with the face of the brick-work, said trimming to be done before the pipe is laid. The same care must be used in filling round the basins as in other portions of the work. In case the street has not been either paved or macadamized, the mouth of the basins must be securely closed, and must be closed during the construction of the sewer under any considerations.

BRICK-WORK.

"The bricks shall be of the best quality, burned hard entirely through, free from injurious cracks, with true even faces, and must be thoroughly wet by immersion immediately before laying; every brick is to be laid in full mortar

joints on both sides and ends, which for each brick is to be performed by one operation. In no case is a joint to be made by working in mortar after the brick has been laid. Every second course will be laid with a line, and joints between courses shall not exceed half an inch in thickness, and between the rings or shells they shall not be less than half an inch.

"No bats are to be used in the face of the work except for closures, no bat to be of less size than half a brick, and in the backing not more than two to be laid together.

"Centers will not be struck until earth filling is brought to the height of two feet above the highest point of the sewer, and the mortar is sufficiently set; they will then be struck and drawn with care, without injury to the work. All work to be carefully protected and no wheeling or walking on it will be allowed. Any work injured before the completion of the whole work to be rebuilt by the contractor at his own expense, and all unfinished brick-work to be racked back in courses.

"The inverts and arches at the junctions of lateral connections, manholes, etc., will be built on suitable centers and special shapes, after plans or instructions from the City Engineer. Vitrified salt glazed clay sewer pipes or spurs of the interior diameter of six inches, to be worked into the walls of the sewer, twenty-five feet apart, at an angle of about thirty degrees, and in the direction of the flow of the current, one end of the spur to be trimmed flush with the inner face of the brickwork, and the other (the bell end) to project at least one foot beyond the outside of the sewer wall, where it will be fitted with a Y branch for double connection. Said spurs will be set at such heights as may be directed by the City Engineer. All connections with lateral sewers, to be made as shown by plans or directed by the City Engineer. The outer end of all spurs and

branches to be securely closed with an earthenware cover or brick carefully fitted in.

"The inverts of all brick sewers shall be examined by the City Engineer upon the completion of the lower half of the sewer, and before the upper half has been completed, and the inside surface of the lower arch of the sewer must be coated with a smooth layer of cement mortar, one-quarter of an inch in thickness.

PIPE SEWERS.

"Pipes must be of the best vitrified salt glazed clay, perfectly burned, without warps, cracks or imperfections, and shall be well smoothed and glazed inside and out, with openings twenty-five feet apart, sufficiently large to receive a six-inch pipe. Said openings shall be formed by the use of one length of Y pipe, and in no case shall T pipe be used. These openings to be securely closed with a stopper made to fit tightly, and of the same material as the pipe The position of these openings to be marked on the surface of the ground in such a manner as the Superintendent of Streets may direct. All special forms or shapes required must be furnished by the contractor without extra charge.

"The sewer to be laid on a bed of good, clean sand, earth or clay, free from rocks, and then the trench to be filled as formerly specified. All connections of any kind whatsoever shall be made on a curve, and in such a manner as the City Engineer shall direct. Before being lowered into trench all pipes shall be fitted together on the surface, and marked in that position, so as to insure after laying a uniformity and smoothness along the inside, especially on the lower half.

"During the construction, a bag filled with straw or other such material, the size of the pipe, must be kept in the pipe eight or ten feet behind the work, and drawn forward as the

work proceeds, so as to insure the cleanliness of the inside of the pipe and the smoothness of the inside of joints.

"No sewer will be accepted unless it is perfectly clear and clean throughout its entire length, and so that the full diameter may be seen when looking from one manhole to another. Especial attention will be paid to the construction of the sewer with reference to the line and grade, and where a sewer is not connected with any other permanent work, at least ten feet must be left open in order to facilitate such inspection, and must be filled immediately after said inspection.

* * * * * *

GENERAL CONDITIONS.

"All material and workmanship required for all work under these specifications must be of the best quality and furnished by the contractor.

"The entire work to be executed to the true intent and meaning of these specifications, and the drawings on file in the office of the City Engineer, and to the satisfaction of the Superintendent of Streets.

"Should any doubt arise as to the meaning of these specifications or the drawings, the City Engineer shall be the proper officer to interpret the same, and any decision by him in such matter shall be final.

"Bidders will estimate by the lineal foot for sewer and how much for each manhole cover and corner complete, correctly computing and carrying out the aggregate amount for the entire work."

These specifications were in use until quite recently. They have now, conforming to suggestions contained in our letter of May 23, 1893, to the Superintendent of Streets

been slightly modified, so that there is no longer any ambiguity in the matter of distance between Y's.

A clause has also been inserted requiring the sewer to be left exposed its entire length until the City Engineer examines the same.

In all ordinary cases a diagram is issued by the City and County Surveyor, showing for each sewer to be constructed the line of the proposed sewer and the position and elevation of reference points to be used by the builder of the sewer for line and grade. When the sewer has been completed and is offered for acceptance, he issues a certificate which generally sets forth that at certain points (usually at manholes only) the sewer is at certain depths below street grade.

According to the law governing the matter of street improvements, the City Engineer, when required to do so, must furnish plans, specifications and estimates of the cost and expenses of any contemplated improvement, and for the work of constructing sewers specifications must always be furnished by him. But he does not seem to be required to know that the specifications are really being carried out, except when sewers are paid for by an issue of bonds, or out of the Street Contingent Fund. In all other cases the law provides that the work must be done under the direction and to the satisfaction of the Superintendent of Streets.

The law was undoubtedly intended to enable and to require the several departments of the municipal government to enforce strict compliance with plans and specifications, and when an inspector of work is not competent to certify to the construction of work on prescribed lines and to prescribed grades, it would seem natural that the Superintendent of Streets should require some evidence from the City and County Surveyor with reference to correctness of line and grade. But even when thus tested by the Surveyor, a

lack of conformity to line and grade at the points where tested does not always seem to have been considered sufficient cause for withholding certificates of acceptance, although in justice to the Surveyor's office it must be stated that the facts, as determined at the few points where tested, have probably always been correctly set forth in his certificate, and special attention has occasionally been called to a lack of conformity by a diagram on the reverse side of the certificate. It is well known, however, that the possession of the certificate, even when not certifying to the correctness of the work performed, has often aided in securing its final acceptance. It must also be evident that under careless or dishonest inspection, by the representatives of the Street Department, sewers can be constructed of proper character and at proper depth at the manholes where they remain open to inspection, and yet be out of line, at improper grade and faultily constructed at other points. This can best be illustrated by reference to an example which in connection with our investigations has come to notice.

On the 31st day of December, 1891, a permit was issued for the construction of a sewer in Baker street between Pacific avenue and Jackson street. The contractor had already entered into a contract with the property owners to construct a fourteen-inch sewer, and this contract, dated April 4, 1891, was the basis of his subsequent work. The diagram issued to the contractor instructing him concerning line and grade is not available, no copy of the same being preserved in any records, but it bore the usual legend, "sewer to be ten feet deep, if connections will allow." The certificate of the City and County Surveyor, dated the 24th day of March, 1892, contains the following: "I have examined the work, grading, wooden and stone curbs, macadam and sewer, Baker street from Jackson to Pacific streets, and find work to official lines and grade (except as shown by diagram on back of this certificate); average

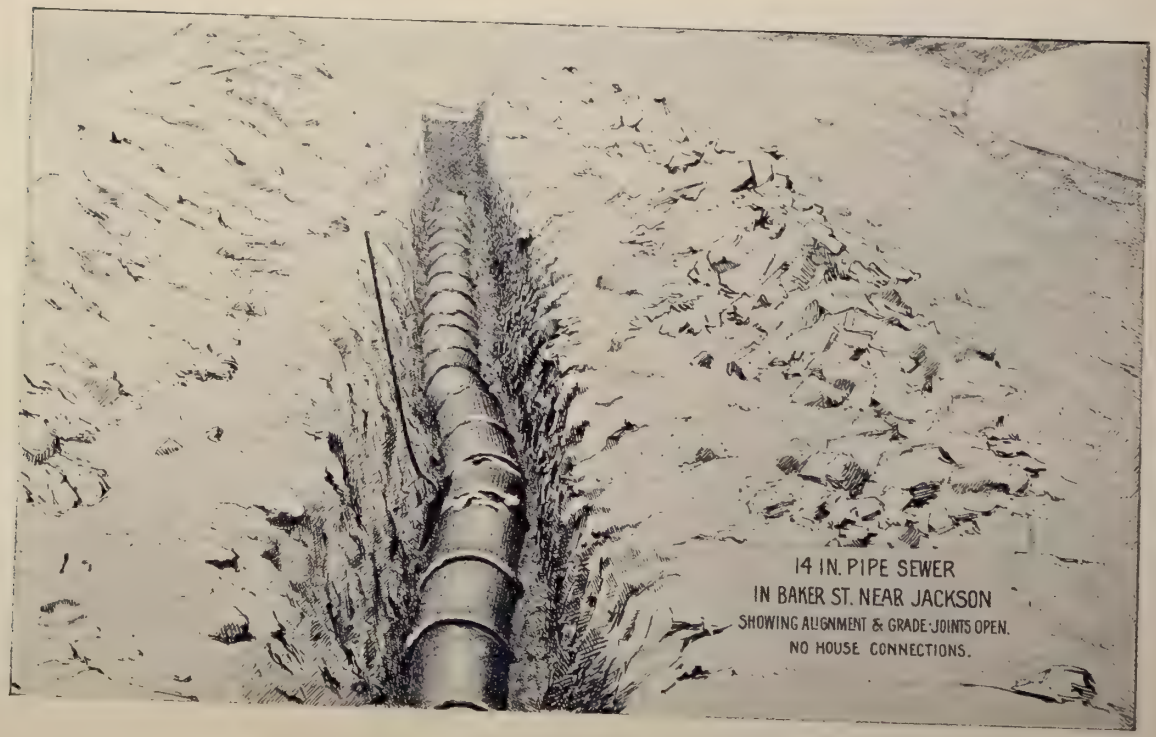
crown of macadam 19 inches above official grade, curb and manhole 20 feet 6 inches south of Pacific avenue, 9½ inches above grade, depth 6 feet 6 inches below curb of manhole."

On the basis of this certificate and the oath of the inspector, that "the work of constructing a 14-inch ironstone-pipe sewer, with manhole and cover, on Baker street between Pacific avenue and Jackson street, has been completed in a good and workmanlike manner, and strictly in accordance with the specifications contained in and annexed to the contract under which same has been constructed," the sewer was accepted as a 16-inch sewer on March 25, 1892, and the work was paid for by the property owners.

By our orders portions of this sewer were uncovered in May, 1893, and there might just as well have been no sewer in place. At some points it was only between 2 and 3 feet below official street grade and only 3 to 4 feet below the present crown of the macadamized street surface, and did not average 4 feet below street grade. Its gradient was so irregular that on the convex surface of the pipe at some joints between pipe sections the spigot end of the one did not reach the outer edge of the bell of the next by half an inch to an inch. The joints between sections were not filled with mortar, and rarely showed signs of mortar except at the bottom and on top. As usual with the sewers of the city, only one-tenth of the prescribed number of openings for house connections were in place, and there was no ladder in the manhole.

(When the fact that we were uncovering this sewer came to the notice of the contractor who had done the work, he at once volunteered to put the sewer in properly, and we believe this has been done.)

Another recent example of the evil results of divided responsibility and lack of definite instructions was found at


14 IN. PIPE SEWER
IN BAKER ST. NEAR JACKSON
SHOWING ALIGNMENT & GRADE-JOINTS OPEN.
NO HOUSE CONNECTIONS.

VIEW OF INTERIOR OF PACIFIC ST SEWER
LOOKING UP FROM A POINT ABOUT TEN FEET EAST
OF THE EAST LINE OF FRONT ST.
THE SEWER AT THIS POINT IS 9 FEET 2 9 INCHES
IN DIAMETER AND THE CASSING WHICH CLOSE THE UPPER
HALF OF THE SEWER AT THE EASTLINE OF FRONT ST
ARE TWO FEET BELOW THE BARROS WHICH CLOSE THE LOWER
HALF OF THE SEWER AT THE WEST LINE OF FRONT ST

Randall and Chenery streets. At the crossing of these streets there was no connection of the sewers in the adjacent streets with the sewers in the crossings. They were built at different depths below the street grade. We venture no explanation. The Street Department has been at work at this point this year making necessary alterations.

At the crossing of Elizabeth and Ellen streets the official grade is 236 feet. This means that the sidewalk curb at each of the four corners should be at this elevation. Both streets near this crossing are graded and have been macadamized. Redwood curbs have been set, but not to official grade, on the west side of the crossing. The northwest curb is about 3 feet too high ; the southwest curb is about 1.7 feet too high. The sewer in Elizabeth street west of this crossing is only 4.8 feet below the present curb lines and only 2.6 feet below official street grade. In seeking information concerning the reason for this peculiar condition of affairs we have been told that at the time the work on these streets was done a grade change was petitioned for by property owners, and that the work done was intended to conform to the proposed change. How it happened that work for whose maintenance the city will hereafter be responsible, as in the case of the sewer, was permitted to be constructed to a proposed grade instead of to official grade finds its answer in the system of street administration.

Some twelve years ago the three feet by five feet brick sewer in Pacific street east of Front street was constructed to the prescribed depth, which may have been "ten feet, if connections will allow," although its bottom at Front street was thereby made two feet and a half higher than the bottom of the Pacific street sewer for which it was to serve as an outlet. It is very improbable that such connection was planned by the authorities. It may safely be assumed to be due to indefinite instructions issued to the builder.

On the 10th day of June, 1893, a diagram was issued to

a contracting firm as a guide to the construction of a sewer in Seventh street from Townsend to Channel. The diagram indicated the position and elevation of a number of reference points, and the only instruction given the contractors concerning grade throughout the three blocks covered by the contract was in the following words: "Sewer to be ten feet below street grade if connections will allow," which appeared on the diagram.

The sewer to be constructed was intended to replace a wooden box sewer which had served its time, and is an extension of the three feet by five feet brick sewer that was already in place in Seventh street above Townsend street. The bottom of this brick sewer at the north line of Townsend street is more than eleven feet below street grade, but of this fact the contractors had no information at the outset; neither were they informed of any special connections to be made with existing sewers, or sewers that might hereafter be proposed. Moreover, it was apparently made optional with the contractors if connections required a less depth at any point, to put the sewer at a less depth, and to fix their own grade line. No matter what was intended by the instructions furnished on the diagram by the City and County Surveyor, it is patent that if the sewer at Townsend street must be at a greater depth than ten feet below street grade, it may have to be at a greater depth throughout to Channel street.

The contractors can hardly be assumed to have incurred any responsibility by reason of these indefinite instructions, particularly as they were not required to make any special investigations as to depth of existing sewers before commencing the new work. It happened to suit their convenience to commence sewer construction near the lower end of Seventh street, and the new sewer was put at ten feet below reference points set by the Surveyor for street grades. When about to make connection with the old brick sewer

DIAGRAM showing

CROSS SECTIONS of WALLER ST. SEWER

The dotted out-line and light shading within show construction called for by specification, viz: concrete foundation upon two layers of three inch plank; the heavy lines and shading show what was found by examination.

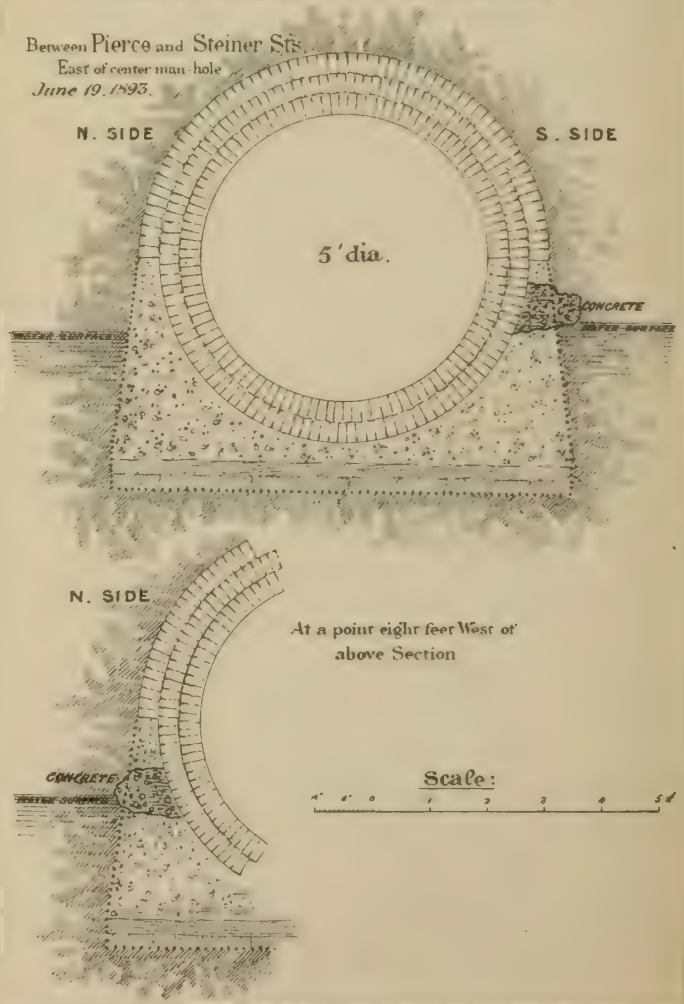


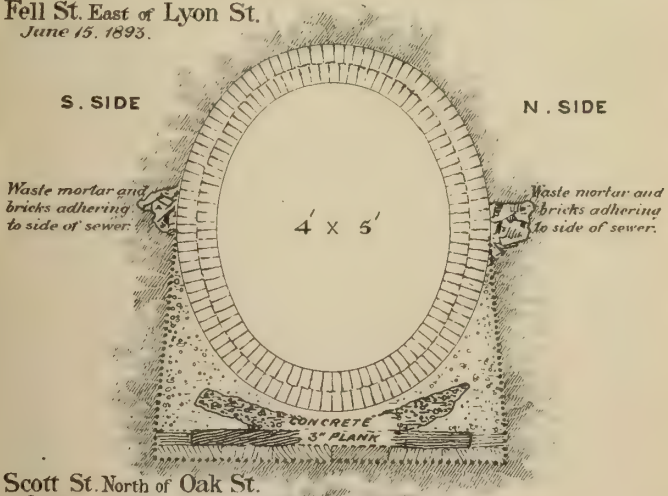
DIAGRAM showing

CROSS SECTIONS of SEWERS

The dotted out-line and light shading within show construction called for by specification, viz: concrete foundation upon two layers of three inch plank, the heavy lines and shading show what was found by examination.

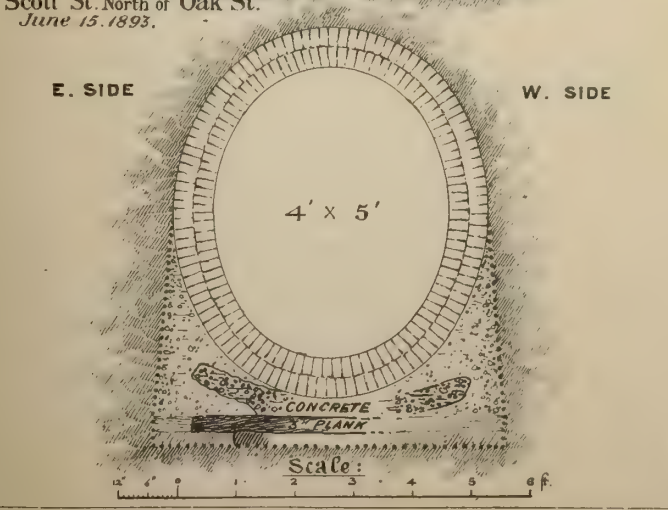
Fell St. East of Lyon St.

June 15. 1893.


S. SIDE
N. SIDE
Waste mortar and bricks adhering to side of sewer.
Waste mortar and bricks adhering to side of sewer.
4′ x 5′
CONCRETE
3" PLANK

Scott St. North of Oak St.

June 15. 1893.



in this street at Townsend it was discovered that the new work did not meet the old, being twenty inches higher.

This result is bad enough, but if the instructions are carefully examined it will be seen that even should they mean exactly ten feet below street grades they do not define a proper gradient for a sewer. A uniform depth thus described means a perfectly horizontal sewer at every street crossing, an absurdity which seems to have been early introduced in this city and adhered to with unaccountable persistency.

To the several examples which have already been cited of defective work we have to add another of a main sewer which was constructed under joint supervision of the City and County Surveyor and the Superintendent of Streets. We refer to the Fell street sewer, which was constructed in 1891 and 1892, from Cole street, on Fell, along Fell to Scott, thence to Waller, thence to Fillmore, thence to Ridley, thence to Church, thence to Fourteenth, thence to Guerrero, and included a sewer on Oak street from Devisadero to Scott streets and on Dolores from Fourteenth to Fifteenth streets.

Without entering into detail concerning evidences of careless workmanship, that became apparent by an inspection of the interior, we here present only the result of our investigations at four different points,* selected at random, at which we had the sewer uncovered, in order to dispel or confirm the suspicions that the work was not only defective in workmanship, but was fraudulent.

This sewer was examined in June, 1893, at a point just west of Ashbury street. No concrete support was found at that point under the two ring masonry work ; neither was a third ring of brick in place. But the specifications require the former, in case of an unstable foundation, and the latter, in case the sewer has a stable foundation.

At another point on Fell street, east of Lyon, a layer of

* These excavations were made at the direction of the Grand Jury, to whom the results of our examination have already been presented.

concrete two to six inches in thickness was found interposed between the double plank support and the masonry, but the thin edges of this concrete afforded no support to the sides of the invert as intended by the plans.

The examination at a point on Scott street north of Oak showed a similar deficiency of concrete, and also a fourth on Waller between Steiner and Pierce. In the latter case the outside ring of brick work in the arch was without any support at the sides.

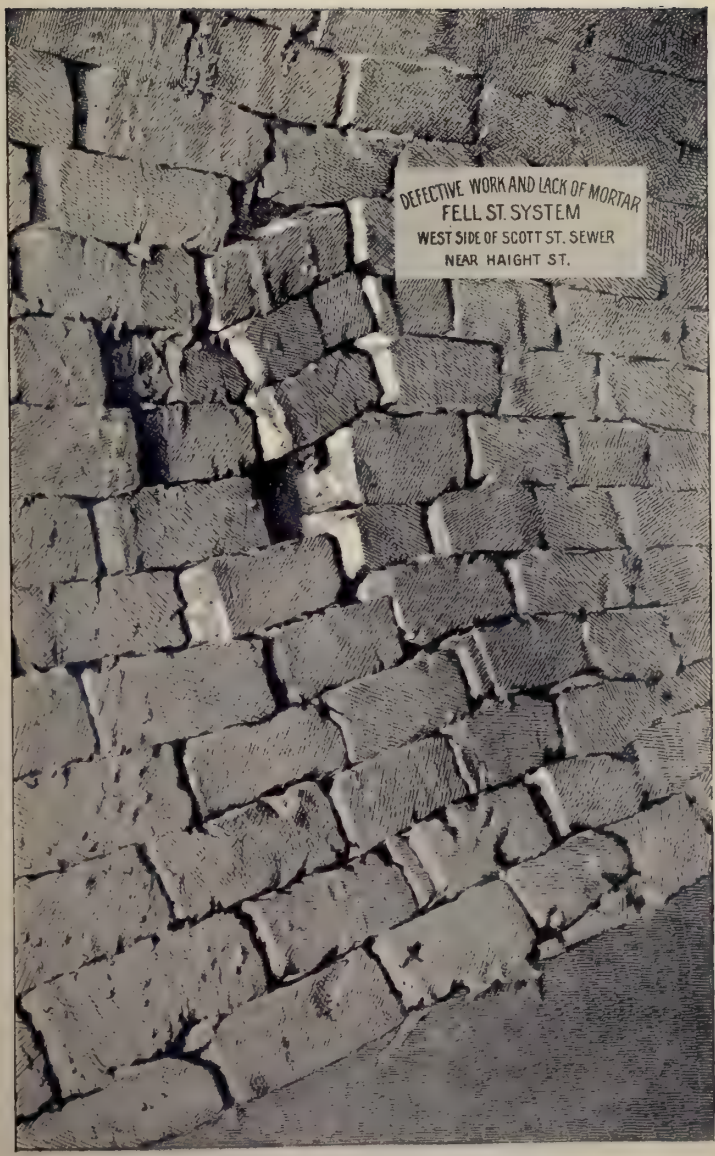
On the diagrams presented herewith the extent of the work in place is indicated in full lines. The work required by the specifications and plans is shown in dotted lines. Further comment on the defects which are apparent at all four points would be superfluous. But we feel called upon to emphasize again the necessity for a modification of an administrative and executive system controlling the construction of public works that permits the acceptance of work which is in clear violation of the requirements.

COST OF SEWERS NOW IN USE.

The following table has been compiled from the published reports of the office of Superintendent of Streets from 1859 to 1892. Where data was lacking approximations were noted. Where marked by an asterisk (* the approximation was made by this office.

The cost of sewers as carried into this table, though based on estimates made annually, must be regarded as a mere approximation. It includes the cost of improving street corners in some instances, while in others this cost is omitted. When sewers were reconstructed or replaced by new sewers, the length and cost of the rebuilt sewers seem to have been carried into all the records the same as new work.

The aggregate length of all sewers now in use will there-


DEFECTIVE WORK AND LACK OF MORTAR
FELL ST. SYSTEM
WEST SIDE OF SCOTT ST. SEWER
NEAR HAIGHT ST.

fore fall far short of the aggregate lengths noted in the table.

Since 1883 the cost of manholes and the cost of catch-basins (cess-pools), are noted as separate items in the official reports, but in the case of catch-basins their cost is generally given in connection with the improvements of street crossings or corners, and the labor of now attempting a complete segregation did not seem justified, particularly as the rates adopted by the several Superintendents of Streets in estimating the cost of different kinds of sewers have varied greatly.

According to the data contained in the table the aggregate length of all kinds of sewers constructed to June 30, 1892, including the length of rebuilt sewers, is 1,322,735 feet, or 250 2735-5280 miles; and the total expenditure for sewer construction has aggregated about $5,714,225.00.

Year.	Redwood Sewers.		Brick Sewers.		Cement Pipe Sewers.		Iron Stone Pipe Sewers.		Manholes.	
	Length. Feet.	Cost.	Length. Feet.	Cost.	Length. Feet.	Cost.	Length. Feet.	Cost.	No.	Cost.
1858-59...	1,740	$670	*900	$4,883						
1859-60...	.....	3,398	*4,198	22,633						
1860-61...	*760	1,897	*5,725	30,830						
1861-62...	1,606	4,882	10,306	61,916						
1862-63...	5,889	21,640	13,344	116,709						
1863-64...	7,646	27,975	20,012	173,389						
1864-65...	5,272	†29,060	20,967	†287,200						
1865-66...	9,260	35,368	24,414	203,920						
1866-67...	12,137	49,578	21,303	156,745						
1867-68...	11,150	47,424	30,650	237,798						
1868-69...	11,908	50,196	36,630	365,598						
1869-70...	8,695	53,530	23,144	213,481						
1870-71...	1,320	5,468	11,147	62,215						
1871-72...	6,496	17,534	1,648	8,798	6,534	$11,165				
1872-73...	2,561	6,063	10,998	59,316	5,139	11,454				
1873-74...	2,362	8,903	15,921	84,389	4,866	10,373				
1874-75...	5,135	11,415	28,401	162,437	9,321	21,052				
1875-76...	6,140	*14,359	46,564	256,198	16,454	36,821	9,598	$21,864		
1876-77...	8,270	26,954	46,330	346,785	24,492	64,431	24,035	59,654		
1877-78...	3,300	6,707	16,223	100,417	9,261	18,081	21,928	47,826		
1878-79...	2,949	5,900	8,071	42,233	2,949	5,900	11,400	21,841		
1879-80...	1,550	3,098	9,465	49,552	2,201	4,691	8,694	20,462		
1880-81...	420	‡ 1,260	413	2,168	.....	.....	8,278	* 19,870		
1881-82...	.....	.....	550	2,887	1,086	*2,172	1,552	* 3,725		
1882-83...	.....	.....	1,414	7,424	275	*550	4,237	* 10,170		
1883-84...	470	1,642	7,193	41,717	275	*550	12,966	27,229	63	$2,520
1884-85...	1,724	6,410	14,183	89,765	.....	.....	27,135	61,459	134	3,350
1885-86...	481	1,924	10,850	59,675	.....	.....	38,364	86,319	166	4,150
1886-87...	316	1,106	6,244	34,342	.....	.....	27,495	68,737	113	4,520
1887-88...	.....	.....	12,039	66,215	.....	.....	63,849	159,623	225	7,875
1888-89...	.....	.....	2,062	11,341	.....	.....	72,457	144,914	303	10,605
1889-90...	.....	.....	10 818	54,090	.....	.....	77,183	154,366	372	13,120
1890 91...	.....	.....	12,503	62,815	.....	.....	103,136	195,959	351	14,040
1891-92...	.....	.....	37,301	206,824	.....	.....	85,955	154,719	380	13,300
	119,557	$448,063	521,883	$3,746,705	82,853	$187 240	598,442	$1,258,727	.....	$73,480

* New sewers, $4,588; rebuilt sewers, $9,771.

† George Cofran, Superintendent of Streets, in 1864-65, says: (M. R.

THE LOCAL SEWERS.

Although we shall at this time speak only in general terms of the system or systems of sewerage which we propose to recommend for this city, a few words are necessary to emphasize the importance of making many local modifications or alterations in sewers for the improvement of sanitary conditions.

Evils which are out of sight though creating nuisances of the worst kind exist in the sewers of all parts of the city, due to the defective planning and bad constructive work of the past.

Local defects in sewers may be classed under two heads —defects of design and defects of construction. To the former belong excessive size, brick sewer crossings where none were necessary, improper gradients, a superfluity of catch-basins, etc.; to the latter the use of inferior material, careless workmanship and non-compliance with specifications. These matters have been forced upon our attention in collecting information that would enable us to make intelligent use of the sewers already constructed. Having been brought to our notice they cannot be ignored, and we recognize that the earliest possible provision must be made for abating those which most seriously menace the health of the public. Some reference to them may therefore be permitted in this progress report.

Very soon after the organization of the Board of Engineers, whose successors we are, the following letter was sent to the Hon. Board of Supervisors:

To the Honorable the Board of Supervisors
of the City and County of San Francisco—

GENTLEMEN: At the outset of our investigations we

64-65.) "The cost of work for the past year appears to be enormous, but the calculations are made upon the basis of legal tender notes, and as a large portion of the work was done during the autumn and winter months when these notes commanded but little more than forty-five cents on the dollar, the cost in gold would be reduced one-half."

‡ $10,241 expended in repairing sewers this year not included.

find that a practice has long been prevalent of constructing brick sewer crossings where none are necessary, and of making many lateral sewers of much larger dimensions than actually required.

Lateral sewers of economic size are not only more costly in construction and maintenance than properly proportioned sewers would be, but are detrimental to health by reason of the difficulty of properly flushing them.

Should your Honorable Board so desire, this Board will be pleased to advise in these matters and to pass on any project plans or specifications which may be referred to us to the end that sewer extensions and reconstruction work may be to good advantage.

The suggestion contained in the letter and at once acted upon, and a resolution was passed containing the following:

RESOLUTION RELATIVE TO SEWER SERVICE

"Resolved, That the Superintendent of Sewers be and is hereby requested, before recommending the construction of sewers on this Board, to first submit the proposed sewer work and the location of same to the Board of Engineers appointed by Mayor, and provide a system of soundings for their opinion and approval.

"First—As to the necessity of the proposed sewer.

"Second—As to the required sewer diameter or other dimensions of the sewer, to grade and required depth.

"Third—As to the material to be used in constructing the sewer.

"Fourth—Especially, That the City Surveyor be and is hereby requested to confer with the said Board of Engineers in the preparation of specifications for sewer work, so that the same may be constructed in a manner in accordance with the plans to be hereafter adopted to provide for a proper system of sewerage."

The letter above quoted is self-explanatory.

The present practice of constructing large brick sewers

Special mention of particular cases has here been made merely to illustrate some of the types of abortive design; it is hardly necessary to add that our examination has extended to every part of the sewers in the city where accessible, and that a complete record in detail of such examination is being prepared that will be of service not alone in devising a comprehensive system but also as a guide to the early correction of the worst evils.

It may perhaps be well in this connection to further illustrate the enexcusable practice of constructing large brick sewers, where very small pipe sewers would have served the purpose.

Main lines of drainage have always been maintained on each of the several east and west streets in the lower part of the city, as, for example, in the district south of Jackson street and east of Kearny street. There are three feet by five feet brick sewers in each of the east and west streets. It might be expected then, that in the north and south streets there would be only small local sewers; but this is not the case. Every north and south street, every intermediate street or alley, almost without exception, has the large three by five brick sewer. These sewers form a great rectangle of intersecting filth receivers on light grades that cannot be flushed out and cannot be kept clean.

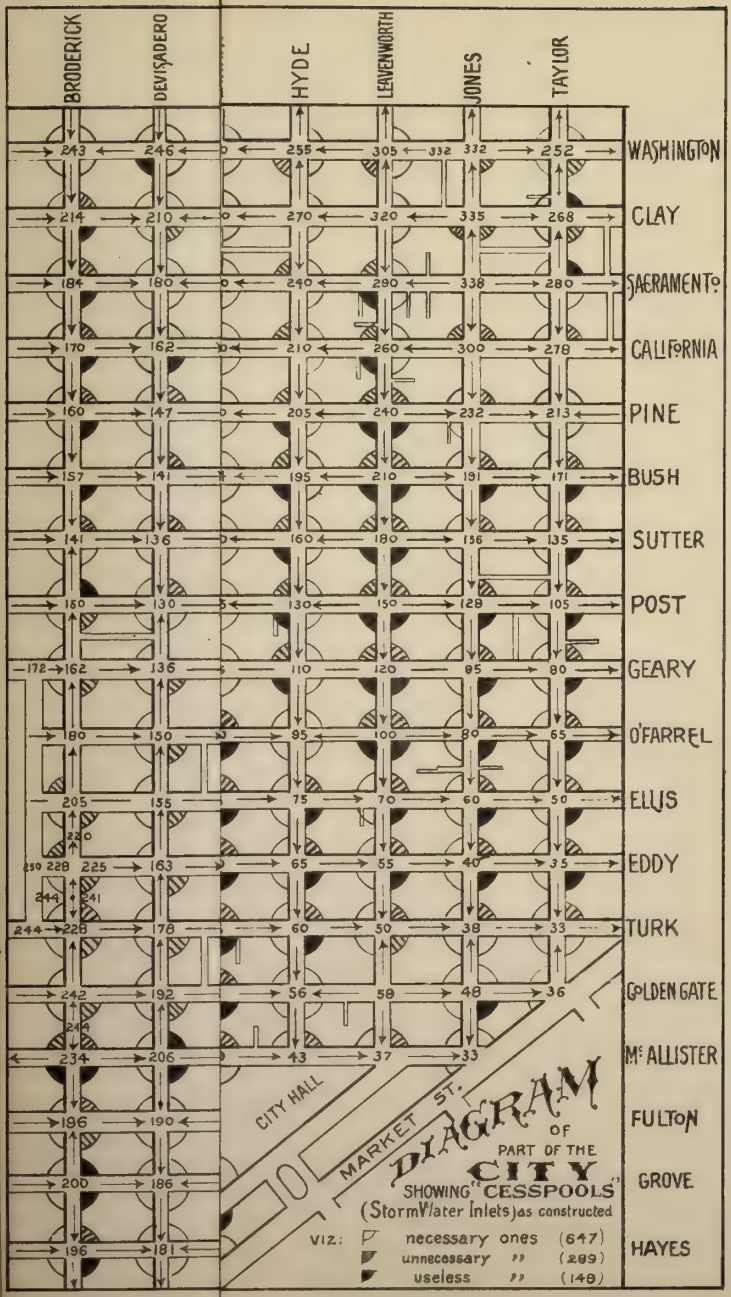
Occasionally an attempt has been made to control the direction of the sewage flow by the introduction of a different arrangement at street crossings from those already referred to. Thus, at Leavenworth and Bush streets, the brick sewer from the north in Leavenworth street turns eastward into Bush street on a curve; but descending toward the south on Leavenworth street and toward the west on Bush street, with dead ends at the crossing, are three feet by five feet brick sewers. Why they are there, unless it be that the property is valuable in that vicinity and could afford to pay for an expensive sewer, it will be difficult to explain.

It is recognized as necessary that sewers should be well ventilated, but it is hardly likely that the property owners and residents on any street frontage would consent to have ten-inch ventilating tubes terminating at the sidewalk curb line, when such a pipe leads up from a typical crossing that has been made a cesspool by reason of defective design or improper construction. Yet, in the heart of the city, in the district extending from Hayes street on the south to Washington street on the north, from Mason on the east to Broderick street on the west, there are no less than 139 storm water inlets and catch-basins (cesspools as they are locally, though improperly, termed), that have been put in at corners from which the gutters slope downward in both directions, which therefore receive no water, not even in the rainy season, and which are never trapped against the contaminating sewer gases.

The construction of the vast number of perfectly useless catch-basins, which the above statement indicates as existing throughout the city, has served no purpose whatsoever, except to yield a profit on construction and to contaminate and threaten the healthfulness of the city.

In the district above named the blocks are 275 feet by 412½ feet. No inconvenience would result to the public if on the grades there prevailing storm water inlets were further apart than one at the foot of the slope of each block. Had this fact been taken into consideration the number of catch-basins would have been still further reduced than by the mere omission of those that are perfectly useless. In the diagram herewith submitted the location of the catch-basins now in use in this district is shown, and those that are useless and those that are unnecessary are specially marked for identification.

Estimated at $90 per catch-basin completely equipped and connected with the sewer, it will be found that useless catch-basins alone in this small district, which covers only


BRODERICK
DEVISADERO
HYDE
LEAVENWORTH
JONES
TAYLOR
WASHINGTON
CLAY
SACRAMENTO
CALIFORNIA
PINE
BUSH
SUTTER
POST
GEARY
O'FARREL
ELLIS
EDDY
TURK
GOLDEN GATE
Mc ALLISTER
FULTON
GROVE
HAYES
CITY HALL
MARKET ST.
DIAGRAM
OF
PART OF THE
CITY
SHOWING "CESSPOOLS"
(Storm Water Inlets) as constructed
VIZ: necessary ones (647)
unnecessary " (289)
useless " (148)

about one-fifth of the entire area of built up portions of the city, have cost the property-owners about $12,500, which sum is to be considered as expended to the detriment, and not in the interest of the healthfulness of the city.

Every storm water inlet and catch-basin is generally supposed to be closed to the sewer by means of a water trap. Most of them are constructed of such form that while in use very little sewer gas can escape from them, but this is by no means true of all. In the most common type a masonry partition wall extends from the top into the basin between the inlet and the outlet, to a depth below the level of the outlet. This partition is supported by an iron bar, and no water can flow from the catch-basin into the main sewer until the water level in the basin rises above the bottom of the partition wall, thus preventing a passage of sewer gas from that portion of the basin on the outlet side to that into which the inlet discharges.

This arrangement is clearly illustrated by drawings accompanying this report.

It is apparent that at the time when it is most desirable to have these storm water inlets trapped against the sewer gases in the summer and fall months, that the probability of their being imperfectly trapped is greatest, because there are no summer or fall rains to fill them. They lose water rapidly by leakage and evaporation, and it is rare that sufficient water is used on the sidewalks and streets to replenish the loss. They cannot, therefore, even when in good condition, be classed as reliable traps. Not only are they unreliable when in good condition, but they are frequently out of order. Large amounts of silt collecting in the bottom of the basins sometimes close the passage under the partition wall. During rains streets are flooded until some one raises the outer cover. When such an accident has happened a few times, in any locality the idea occurs to some one to break a hole through the partition wall near the top,

and there is no more trouble from choking up, but the trap has been completely sacrificed. Hundreds of catch-basins are in this condition. This being the case, the next step taken was the adoption of a simplified catch-basin in which there was no partition wall. As a last step to afford more open way to entering waters, gratings have at many points in the city, notably near the City Hall and on Market street, been substituted for the outer covers, and that all semblance to a water trap, even though the partition wall be in place, is destroyed.

The question at once arises, are the large catch-basins in combination with the storm water inlets of any service? Should the fact that they are nearly always full to the outlet with silt be made the criterion, the answer must be in favor of these or still larger catch-basins, but before a final answer is given it will be well to look into the matter a little further. On paved streets they receive the material which should be carried off by street-sweepers, principally horse manure, waste paper and fine light silt. To the extent that this is carried into storm water inlets by gutter water there is no objection to receiving it into the sewers. It goes there at the present time though, through or across the top of the accumulation already in the basin. It can be kept out of the sewers only by careful and thorough street sweeping or by much more frequent cleaning of catch basins. The catch basins not only receive this material by water carriage, but it, garbage and other waste, is often forced into them by hand. The basin itself, from which the overflow into the sewer occurs, is so large that small volumes of water entering the basin during the summer months, do not carry off even the light organic matter, which, floating for months on the basin slush, makes perfect cesspools of these silt basins, parts of which are always directly open to the air.

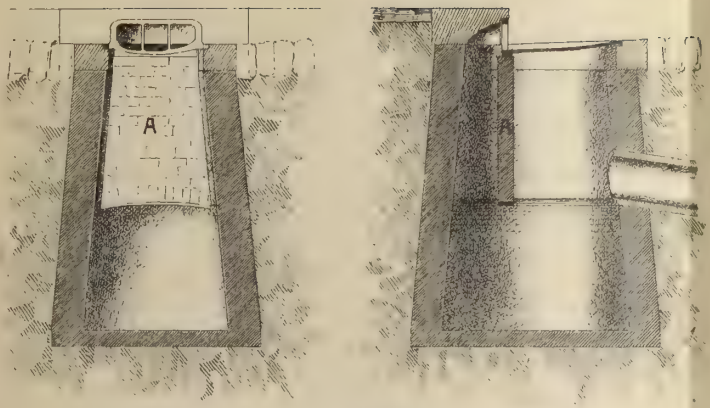
Their use on paved streets is therefore to be condemned

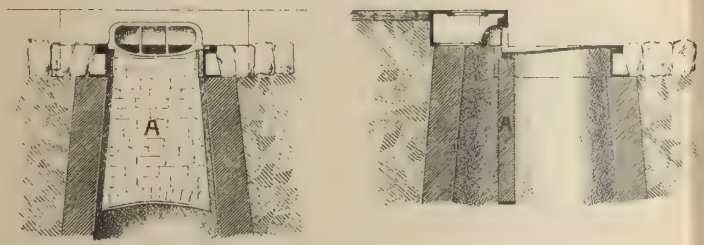
DIAGRAM showing CONSTRUCTION OF CATCH-BASINS OR CESS-POOLS

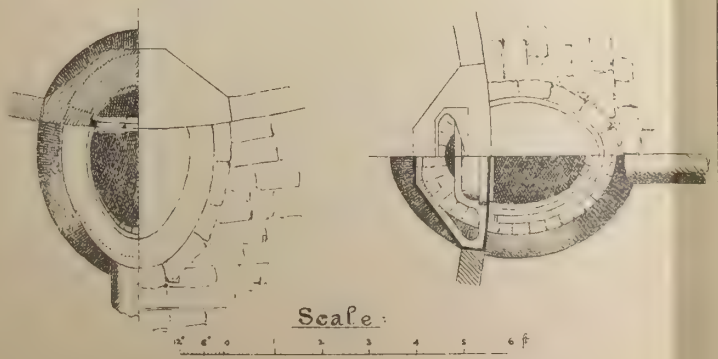
1. *with stone-cover on side-walk and stone-coping to well.*

2. *with iron cover on side-walk and iron rim to well*

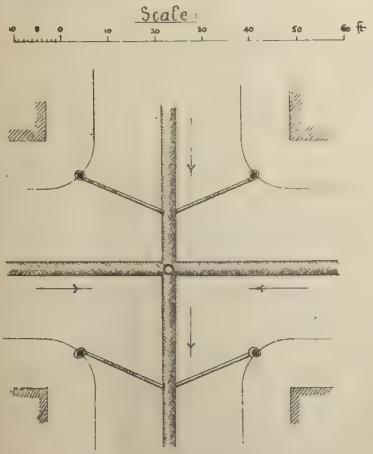
Note : *The same constructions are applied without the trap-wall A.*







Arrangement of cess-pools and drains to sewer :



and a very simple and much cheaper form of rain water inlet, with valve and water trap, should be substituted for them. We have not yet agreed upon the best form to be adopted for this purpose, but hope to perfect a design adapted to local conditions at an early date.

On macadamized streets, on streets that have been merely graded and in the vicinity of unimproved property where drifting sands reach the gutterways, no argument is required to demonstrate the importance of intercepting the silt that the rains gully out of sand drifts, natural soils and macadamized streets, before it reaches the sewers. To the extent of their capacity this is accomplished by the silt basins now in use. But notwithstanding their limited efficiency in this respect, we found some 2000 cubic yards of silt of this character still in the Channel street system of sewers from Fourteenth to Eighteenth streets, and from Channel to Mission streets, after a very much larger amount had already been removed since January 1, 1893, by the Superintendent of Streets.

It will certainly be economical to intercept the material of this character before it enters the sewers, instead of being compelled to remove it from them later by more expensive methods. It is particularly desirable to thus intercept it, because its presence in the sewers may interfere with adequate drainage during rainstorms, and obstructs sewage flow at all times.

Much can be done towards intercepting material of this character by removing accumulations of the same from street and gutter surfaces; but for that which is carried along by rain water temporary catch basins should be provided of such size that they will hold the amount likely to be swept down to them by single heavy storms. These temporary silt interceptors could be retained in use until the street surface be permanently improved.

Right here it may be well to say that in the matter of

street paving, as well as sewering, San Francisco has long felt the want of intelligent engineering supervision, and we desire to make the pertinent suggestion that hereafter all cobble stone or broken rock gutterways on macadamized streets should be thoroughly grouted with cement mortar.

Under all circumstances, however, provision must be made for frequent inspection of catch basins, and for a frequent removal of silt from them, particularly during the winter months.

It is required by the specifications for paving with granite or basalt blocks that the entire surface paved shall be "covered to a depth of not less than one inch with fine beach gravel or clean hard rock finely broken and screened," and for paving with cobbles that the cobbles shall be "covered to the depth of two inches with beach gravel or finely broken blue gneiss rock." In the residence portion of the city cobbles and basalt blocks are used for paving principally on streets whose gradients are too heavy for the smooth surfaced bituminous rock. The fine stuff put upon the surface is in such cases invariably swept down by the first rains of winter to the lower crossing and has thence to be removed from street surface, catch basins and sewers. It is a fruitful source of the many annual complaints of "clogged cesspools." The specifications for paving need revision, for it is folly to pay for an unnecessary top dressing that must invariably be picked up again at increased expense, and which to a large extent finds permanent lodgment in the sewers of light grade.

As in the case of rain water inlets we propose to recommend at an early day a serviceable catch basin for use where much heavy silt is to be intercepted.

RAINFALL.

When the Board of Engineers entered upon the discharge of its duties it was supposed that so far as it would be neces-

sary to make rainfall and the rate of rainfall an element in the determination of volume of drainage to be provided for in each district of this city, there would be ample data available among the United States Weather Bureau and private weather records. But upon inquiring it was found that maximum rate of fall for short-time periods had never been determined for any of the severe storms and is to-day unknown. The weather service station in this city is not even equipped with a rain gauge that will enable a reliable determination of the rate of fall. Totals are recorded at fixed time intervals (generally eight or twelve hours), but no information is available as to variations in the rate of fall between the hours of recording the totals.

It is not sufficient to be able to say that there probably never will be a rainfall that will yield an inch of water per hour. Information must be had as to the maximum rate for short as well as for long-time periods. It will be necessary to approximate this rate on the basis of all the available information for half-hourly, hourly and longer periods, and this approximation must be made before recommendations as to size and character of main lines of sewers can be intelligently made.

It was also hoped that no trouble would be experienced in determining the present volume of flow in the sewers, but this cannot be done satisfactorily. Sewage is not and cannot be confined to main lines of present sewers, and along the water front the unimpeded tidal ebb and flow in the sewers would invalidate any results of observation near the outfall points.

By a combination of the best data available, a basis will this winter be established to serve as a guide in determining volumes of flow for large and small areas.

MONTHLY RAINFALL FROM 1882 TO 1893.

Authority SPRING VALLEY WATER COMPANY.

YEARS.	September	October	November	December	January	February	March	April	May	June	July	August
1882-83	0.36	2.36	4.55	1.31	2.53	1.08	3.39	1.62	3.67	0.00	0.00	0.00
83-84	0.29	1.54	1.58	0.59	4.14	6.56	8.34	7.16	0.10	2.56	0.00	0.00
84-85	0.18	2.63	0.25	8.33	2.48	0.37	1.02	3.35	0.03	0.18		
85-86	0.09	0.74	12.27	4.85	8.19	0.07	2.05	4.75	0.31			
86-87		1.35	0.85	2.07	1.89	9.30	0.86	2.30	0.01	0.07	0.22	
87-88	0.24		1.05	3.29	6.81	1.84	4.12	0.10	0.40	0.19		
88-89	1.09	0.10	4.54	6.58	1.38	0.78	8.75	1.09	2.50			
89-90		7.22	3.53	16.46	11.12	5.90	5.47	1.36	1.12	0.09		
90-91	0.32			4.37	1.19	8.53	2.35	2.75	1.38	0.13	0.01	
91-92	0.81	0.07	0.62	7.23	2.87	3.27	3.28	1.46	2.18		0.11	
92-93		1.93	4.74	8.19	4.31	3.61	5.92	1.65	0.21			

MONTHLY RAINFALL—1849 TO 1893.

IN INCHES.

Authority, THOMAS TENNENT.

YEARS.	September	October	November	December	January	February	March	April	May	June	July	August
1849-50	0.00	3.14	8.66	6.20	8.31	1.77	4.53	0.46	0.00	0.00	0.00	0.00
50-51	0.33	0.00	0.92	1.05	0.72	0.54	1.94	1.23	0.67	0.00	0.00	0.00
51-52	1.03	0.21	2.12	7.10	0.58	0.14	6.68	0.26	0.32	0.00	0.00	0.00
52-53	0.00	0.80	5.31	13.20	3.92	1.42	4.86	5.37	0.38	0.00	0.00	0.04
53-54	0.46	0.12	2.28	2.32	3.88	8.04	3.51	3.12	0.02	0.08	0.00	0.01
54-55	0.15	2.41	0.34	0.81	3.67	4.77	4.64	5.00	1.88	0.00	0.00	0.00
55-56	0.00	0.00	0.67	5.76	9.40	0.50	1.60	2.94	0.76	0.03	0.02	0.00
56-57	0.07	0.45	2.79	3.75	2.45	8.59	1.62	0.00	0.10	0.12	0.00	0.05
57-58	0.00	0.93	3.01	4.14	4.36	1.83	5.55	1.55	0.34	0.05	0.05	0.16
58-59	0.00	2.74	0.69	6.14	1.28	6.32	3.02	0.27	1.55	0.00	0.00	0.02
59-60	0.03	0.05	7.28	1.57	1.64	1.60	3.99	3.14	2.86	0.09	0.21	0.00
1860-61	0.00	0.91	0.58	6.16	2.47	3.72	4.08	0.51	1.00	0.08	0.00	0.00
61-62	0.02	0.00	4.10	9.54	24.36	7.53	2.20	0.73	0.74	0.05	0.00	0.00
62-63	0.00	0.40	0 15	2.35	3.63	3.19	2.06	1.61	0.23	0.00	0.00	0.00
63-64	0.03	0.00	2.55	1.80	1.83	0.00	1.52	1.57	0.78	0.00	0.00	0.21
64-65	0.01	0.13	6.68	8.91	5.14	1.34	0.74	0.94	0.63	0.00	0.00	0.00
65-66	0.24	0.26	4.19	0.58	10.88	2.12	3.04	0.12	1.46	0.04	0.00	0.00
66-67	0.11	0.00	3.35	15.16	5.16	7.20	1.58	2.36	0.00	0.00	0.00	0 00
67-68	0.04	0.20	3.41	10.69	9.50	6.13	6.30	2.31	0.03	0.23	0.00	0.00
68-69	0.00	0.15	1.18	4.34	6.35	3.90	3.14	2.19	0.08	0.02	0.00	0.00
69-70	0.12	1.29	1.19	4.31	3.89	4.78	2.00	1.53	0.20	0.00	0.00	0.00
1870-71	0.03	0.00	0.43	3.38	3.07	3.76	1.29	1.93	0.21	0.00	0.00	0.00
71-72	0.03	0.11	3.72	16.74	4.22	6.97	1.64	1.10	0.16	0.02	0.00	0.00
72-73	0.14	0.21	2.62	7.25	2.17	4.24	0.78	0.52	0.01	0.08	0.03	0.15
73-74	0.00	0.68	1.31	10.13	4.85	1.83	3.55	1.04	0.34	0.08	0.00	0.00
74-75	0.08	2.73	5.92	0.28	6.97	0.20	1.08	0.02	0.11	1.01	0.00	0.00
75-76	0.00	0.22	6.73	3.08	6.41	3.96	4.37	1.04	0.18	0.02	0.01	0.02
76-77	0.20	2.69	0.23	0.00	4.36	1.14	0.91	0.25	0.13	0.00	0.00	0.00
77-78	0.00	0.58	1.38	2.37	10.69	10.75	4.26	0.96	0.12	0.01	0.01	0.01
78-79	0.62	1.19	0.52	0.62	4.23	4.67	8.26	2.29	2.13	0.01	0.02	0.00
79-80	0.02	0.63	2.25	6.31	2.27	1.96	1.82	10.02	1.08	0.00	0.00	0.00

MONTHLY RAINFALL.—1849 TO 1893 CONCLUDED.

Authority, THOMAS TENNENT.

YEARS.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.
1880-81	0.00	0.02	0.41	11.43	3.11	4.32	0.45	1.83	0.18	0.76	0.00	0.00
81-82	0.23	0.48	1.86	3.90	1.40	2.83	3.45	1.20	0.22	0.05	0.00	0.00
82-83	0.24	2.62	4.14	3.07	1.97	1.10	2.83	1.39	3.47	0.00	0.00	0.00
83-84	0.45	1.45	1.55	0.87	3.94	6.53	8.16	6.15	0.22	2.44	0.00	0.00
84-85	0.31	2.51	0.28	7.44	2.42	0.32	0.96	3.20	0.06	0.21	0.06	0.00
85-86	0.12	0.72	11.60	5.03	7.32	0.27	2.01	5.24	0.35	0.01	0.26	0.00
86-87	0.01	1.54	0.61	2.05	1.93	9.18	5.84	2.27	0.05	0.03	0.00	0.00
87-88	0.27	0.00	0.01	3.27	6.75	0.95	3.60	0.11	0.37	0.12	0.30	0.00
88-89	1.03	0.06	5.40	4.39	1.35	0.58	7.74	3.62	0.23	0.02	0.00	0.00
89-90	0.01	7.42	2.99	14.01	9.69	3.53	6.11	1.20	1.10	0.10	0.02	0.00
1890-91	0.14	0.00	0.02	3.27	0.99	7.88	1.34	4.65	1.26	0.18	0.14	0.17
91-92	0.91	0.28	0.90	5.65	2.75	2.67	3.20	1.35	1.29	0.00	0.00	0.00
92-93												

TABLE OF HEAVIEST 24-HOUR PRECIPITATION IN SAN FRANCISCO FROM 1871 TO 1893.

Authority, U. S. WEATHER BUREAU.

	Inches.
24 hours ending 11.43 P. M. December 18th, 1871	3.83
24 hours ending 11.43 P. M. December 19th, 1871	3.12
48 hours ending 11.43 P. M. December 19th, 1871	5.95
24 hours ending 10.08 P. M. November 23rd, 1874	3.91
24 hours ending 4.48 P. M. March 5th, 1879	3.31
24 hours ending 11.08 P. M. January 29th, 1881	4.76
24 hours ending 11.00 P. M. November 24th, 1885	2.58
11 hours ending 1.35 P. M. December 21st, 1885	2.78
24 hours ending 4.00 P. M. February 5th, 1887	3.60
24 hours ending 8.00 A. M. March 13th, 1889	3.06
24 hours ending 8.45 P. M. February 15th, 1891	3.38
24 hours ending 4.00 P. M. December 29th, 1891	2.21
24 hours ending 4.45 P. M. November 28th, 1892	1.46
24 hours ending 3.40 A. M. December 3rd, 1892	2.34
24 hours ending 12.35 P. M. January 30th, 1893	1.39
24 hours ending 11.35 A. M. February 3th, 1893	1.06
24 hours ending 7.40 P. M. March 11th, 1893	1.98
24 hours ending 9.00 P. M. April 6th, 1893	0.71

MONTHLY RAINFALL FROM 1870 TO 1893.

IN INCHES.

Authority, U. S. SIGNAL SERVICE.

YEARS.	September	October	November	December	January	February	March	April	May	June	July	August
1870-71	0.04	0.00	0.47	3.30	2.63	3.53	1.05	1.89	0.23	0.01	0.00	0.02
71-72	0.00	0.07	2.81	14.36	4.00	6.90	1.59	0.81	0.18	0.04	0.01	0.00
72-73	0.04	0.11	2.79	5.95	1.58	3.94	0.79	0.43	0.00	0.02	0.01	0.08
73-74	0.00	0.83	1.16	9.72	5.66	2.21	3.36	0.90	0.66	0.14	0.00	0.00
74-75	0.02	2.69	6.55	0.33	8.01	0.32	1.30	0.10	0.22	1.02	0.00	0.00
75-76	0.00	0.24	7.27	4.15	7.55	4.92	5.49	1.29	0.24	0.04	0.01	0.01
76-77	0.38	3.36	0.25	0.00	4.32	1.18	1.08	0.26	0.18	0.01	0.02	0.00
77-78	0.00	0.65	1.57	2.66	11.97	12.52	4.56	1.06	0.16	0.01	0.01	0.00
78-79	0.55	1.27	0.57	0.58	3.52	4.90	8.75	1.89	2.35	0.05	0.01	0.02
79-80	Trace	0.78	4.03	4.46	2.23	1.87	2.08	10.06	1.12	0.00	0.00	0.00
1880-81	0.00	0.05	0.33	12.33	8.69	4.64	0.90	2.00	0.22	0.69	0.00	0.00
81-82	0.25	0.54	0.94	3.85	1.68	2.96	3.45	1.22	0.21	0.04	0.00	0.00
82-83	0.26	2.66	4.18	2.01	1.92	1.04	3.01	1.51	3.52	0.01	0.00	0.00
83-84	0.42	1.48	1.60	0.92	3.94	6.65	8.24	6.33	0.23	2.57	Trace	0.04
84-85	0.33	2.55	0.26	7.68	2.53	0.30	1.01	3.17	0.04	0.19	0.06	Trace
85-86	0.11	0.72	11.78	4.99	7.42	0.24	2.07	5.28	0.37	0.01	0.23	Trace
86-87	0.01	1.48	0.84	2.07	1.90	9.24	0.84	2.30	0.06	0.07	Trace	0.01
87-88	0.29	Trace	0.99	3.34	6.81	0.94	3.60	0.11	0.38	0.27	0.01	0.01
88-89	0.98	0.13	3.99	5.80	1.28	0.72	7.78	0.96	2.17	0.03	0.01	Trace
89-90	Trace	7.28	2.90	13.81	9.61	5.16	4.73	1.18	1.07	0.10	0.02	0.00
1890-91	0.31	0.00	0.00	3.25	0.98	7.26	1.96	2.44	1.25	0.11	0.10	0.02
91-92	0.77	0.04	0.56	5.62	2.42	2.90	2.85	1.39	1.86	Trace	0.00	0.00
92-93	0.02	1.65	3.91	5.08	3.05	2.75	4.08	1.03	0.15	0.03		

STREET GRADES.

We append to this report a compilation of official street grades complete to the date of this report, and which we hope may be found convenient to publish. All grade tables heretofore published have named intermediate grades in separate lists distinct from those for grades at street crossings. This has made the use of published lists very inconvenient and has been a fruitful source of error in making grade changes, because the existence of intermediate grades was very apt to be overlooked. In the table now presented the grades are mentioned in consecutive order. All streets are arranged alphabetically, and, so far as possible, streets have been correctly named. Where names of streets have recently been changed, both the old and the new names have been carried into the grade table.

This compilation of grades which we have made in connection with our investigations, was incidental to the making of a correct topographical map of the city, to serve as a basis of estimates of volumes of flow and will be of material aid in determining lines of main drainage.

It was very soon discovered that on nearly 300 miles of streets which have been dedicated to public use, grades have not yet been officially established, and that in many portions of the city grade changes should be made before expensive local improvements are made by property owners that will render the making of such changes difficult. Reference has already been made to the necessity for a revision of grades on 15th Avenue south, and at points on San Bruno road. To these examples from the Islais Creek basin may be added the South San Francisco or Hunter's Point section, where the official grades in some instances give the two sides of the same street different elevations. This difference in height is frequently 20, 40, 60 and even 80 feet, while the rise from street to street rarely exceeds 10 per cent. That such an arrangement might be acceptable

on wide streets in a district where lots are unusually valuable for residence or other purposes may be admitted, but it is ill-advised and unnecessary in South San Francisco, and a complete revision of grades in this district should be had at an early day.

In this connection we must call attention to the necessity for determining with great precision the elevation of a number of permanent reference points. It has long been customary to determine elevations on the basis of bench-marks that have been established at the convenience of the assistants employed by the City and County Surveyor. These have generally been the tops of hydrants, the tops of storm water inlets, the sidewalk curb, water tables of permanent buildings, door-steps or other convenient objects. Although all leveling is checked by connecting each line at both ends with points whose elevation has before been determined, it must be apparent that by reason of an accumulation of small errors the actual reference plane may be somewhat at variance in different parts of the city, and that a similar variation may be caused by a general subsidence of street and building areas reclaimed from submerged or swamp lands, as in the case of some parts of the city east of Montgomery street and others south of Market street.

To avoid the confusion sure to result if the present practice be continued, there should be one point selected somewhere near the City Hall, whose elevation after being carefully determined shall be made the basis for a settlement of all controversies that may arise relating to elevation above city base. The reference to an ordinary high-tide mark on a pile somewhere on the water front is too indefinite and the elevation of the point itself is too uncertain and unreliable to be of any great value. City base, as defined by reference to such a point, is too uncertain a plane to be entirely satisfactory.

Once selected, the central reference point or city bench-

mark can be made the starting point for continuous lines of levels to all parts of the city throughout which reliable points should be established for covenient use, and for the protection of the property owners.

Speaking of the necessity of establishing permanent reference points, S. Harrison Smith in his report as City and County Surveyor in 1887, says: *

"I find the official elevations which we have at our command are, in many instances, unreliable and often scattered. This is not to be wondered at when one considers that about twenty years have elapsed since any line of consecutive levels has been run up from the city base, and of necessity many errors have crept in, and many of the old original points disappeared."

For further information concerning city base and street grades and the various statutes, orders and regulations in force defining the relative elevation of the different portions of the street surface, we refer to the supplement accompanying this report.

SHALL THE LACK OF SYSTEM BE CONTINUED.

The duties assigned by law to the Superintendent of Streets in connection with ordinary sewer work, and all other street work, are those of a supervising Civil Engineer, as well as inspector. To fully discharge these duties this official should not only himself be a skillful Civil Engineer, but should have a number of engineer assistants connected with his department. As no provision is made in the law for such assistance he might rely upon the City and County Surveyor for this service, but the City and County Surveyor receives only a nominal salary of $500 in lieu of all fees or other charges for official services, which would otherwise be

* Mun. Rep. 1886–87, p. 313.

a City and County charge, and is permitted to charge fees for services rendered individuals in connection with surveys and street work.

If he be called upon to certify to the correctness of line and grade of any particular piece of work he must be paid for this service, and the builder of the same must stand the charge. The service, if rendered at all, is rendered when the work is offered for acceptance, and the examination extends to those portions only which are conveniently accessible. When the Surveyor is thus called upon he certifies to the facts as he finds them, not necessarily to the fact that the work has been done to the prescribed line and grade. His certificate is therefore of value only as a source of information to the Superintendent of Streets. As work has often been passed which was at fault even at the few points where tested by the Surveyor, it is highly probable that the chief purpose in requiring a surveyor's certificate (for work when not required by law) has been a favor to that official to enable him to collect a fee.

The present system has led to the acceptance of much defective work, and its maintenance is costing the city large sums annually. The records of breaks in sewers and the undermining of street surface, and the collapse of street pavements at nearly 150 different points during the last winter may be cited in illustration of this statement. In nearly every instance the damage to sewer and street was caused by an inflow of water into the sewer through open joints in the pipe sewer, or in the brickwork, or alongside of improperly made connections of house drains with sewer mains. Water thus entering the sewer carried with it sand and soil, undermining the street pavement, and in the general collapse, frequently causing a destruction of the sewer.

In some instances lack of mortar in the invert has caused extensive breaks in the street surface, all the material from which was carried into the sewer through the joints of the

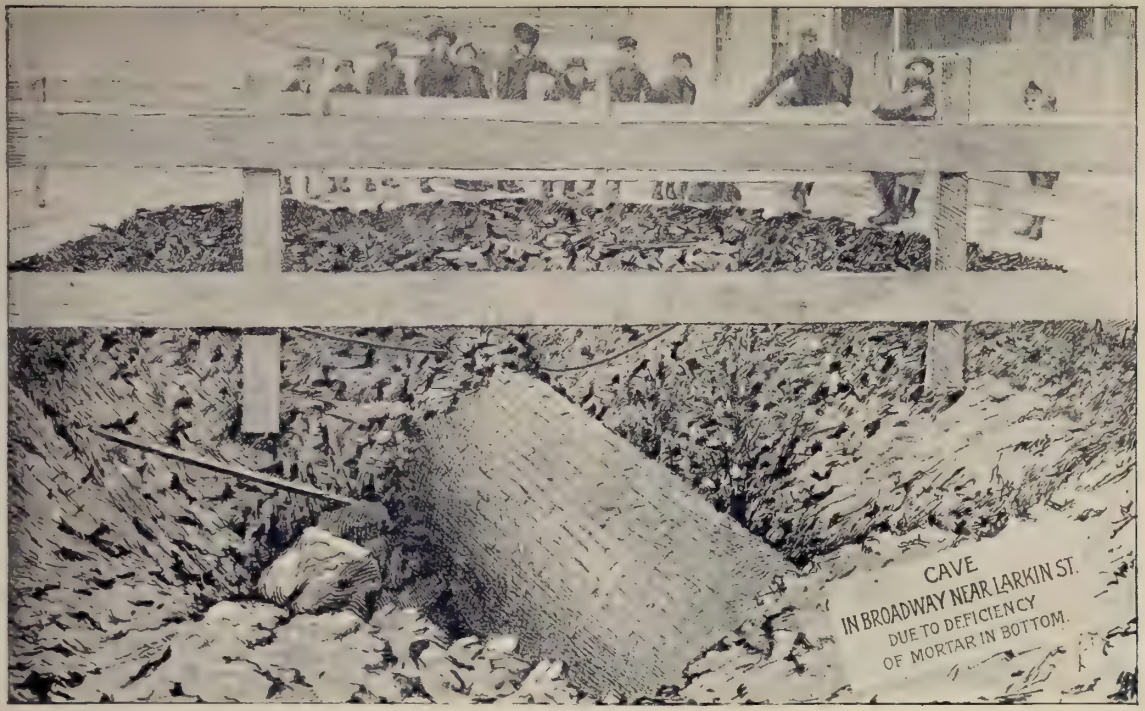
masonry, and yet there were no serious defects apparent in the sides and arch of the sewer, as thus exposed for distances of 10 to 20 feet.

It is not necessary to encumber this progress report with a full record of individual instances of defects of design and construction. Those that have already been presented will suffice to make clear that the administrative system is at fault and that the present condition of the sewers fully justifies the oft-repeated demands for relief. In this connection Dr. I. Rowell, in his report as Health Officer in 1869, says:*

"That a change is necessary in the disposition of refuse matter that now finds an escape through our public sewers is apparent to all. The method of disposing of filth in this city is the most wretched of any city in the civilized world. First, it is made obligatory by law for all privy vaults to be connected with the public sewers, which law is only heeded when convenient. Second, the stench caused of the contents of these vaults with the immense quantity of refuse matter from kitchens and back yards, is sent on its sluggish course through the sewers to the bay, discharging through the open vents at every street corner a volume of disease-bearing effluvia that would cause any animal but man to rush in wild disorder from the spot, and avoid it thereafter as the burned child avoids the fire. If privy vaults are to have their contents emptied into sewers, then the vents at street corners should be sealed by water, or otherwise, so as to prevent the gases escaping from them. Even then the city front, where all the sewers empty, would, as now, be a pool of stagnant filth, the effluvia from which is sufficient to poison the atmosphere of the whole of that portion of the city that lies on the low land."

A year later Dr. C. M. Bates, the successor of Dr. Rowell, in a similar vein writes:†

*Mun. Rep. 1868-69, p. 217.
†Mun. Rep. 1869-70, p. 231.


CAVE
IN BROADWAY NEAR LARKIN ST.
DUE TO DEFICIENCY
OF MORTAR IN BOTTOM.

"Public Sewers—This is a subject of the most vital importance, and without its appreciation and proper regulation it is impossible to maintain the health of the city and prevent the occurrence of malignant and fatal diseases. It is to be very much regretted that so much has been said and written on this subject, while but little or nothing has been accomplished."

"There is a radical defect in our system of sewerage, which must be corrected sooner or later, and the longer it is deferred the greater will be the evil and the more difficult its removal. The southwestern portion of the city is in more immediate want of this reform than any other. The entire grade of that portion of the city will have to be raised along and for several blocks from the water front."

"The plan suggested by His Honor, Mayor Selby, is one that is apparently feasible, and will cost as little as any yet proposed. It is to construct a reservoir on top of Russian hill, or some eminence contiguous to the bay, in order that with suitable machinery the reservoir may be filled with salt water. The reservoir is to be connected with "the main sewers by means of aqueducts, so that they may be flushed or washed out as often as occasion may require, to keep them from filling up or becoming foul or offensive. This method would in every way remedy the evil, provided there is fall enough in the sewers in the extreme southern portion of the city, which is doubtful."

Two years later Dr. Bates again called attention to the defective sewer system, and says :*

"The fact is well established that the cause of many diseases that carry off hundreds of our population annually has been traced with almost perfect certainty to what may be called defective sewerage, or sewerage contamination. We mean by this that they originate indirectly, if not directly, from human excrements being kept in undue

*Mun. Rep. 1871 72, p. 217.

proximity to dwelling, undergoing putrid fermentation or decomposition, which allows its gases to penetrate the houses or finds its way into springs and wells from which drinking water is obtained. The diseases most commonly arising from this cause are typhoid fever, sporadic cholera, cholera infantum, diarrhœa and dysentery."* * * * *

"We had a decided increase in cholera infantum, which is to be attributed, in a great measure to improper food and care of infants while teething, but more particularly to the poisoned atmosphere which is the consequence of lack of proper sewerage. This is proven in table No. 111 (see Mun. Rep. 1871–72, p. 224), which shows that of the ninety-one deaths the Second, Tenth, Eleventh and Twelfth Wards furnished more than one-half, and from the fact that these wards have very little sewerage that is of any account. The number of deaths from typhoid fever is still larger than it should be, but we cannot hope for much diminution until a better and more general system of sewerage is carried out."

Hon. Thos. H. Selby, at the close of his term as Mayor, said :†

"A kindred subject is that relating to the establishment of a Board of Public Works, which under the guidance of practical scientific ability, should originate and recommend the changing of established grades and other important street improvements, and especially have control of the subject of sewerage, upon which, more than all else, the public health depends.

"Two years ago I suggested that the sewers might be flushed from reservoirs constructed on the hills, to be filled from the bay by pumping," etc. * * * * * "This, or some other expedient, should be adopted for cleansing the sewers, which are a prolific source of disease, and in

*Mun. Rep. 1871–72, p. 213.

†Mun. Rep. 1871–72, p. 613.

lower streets, along the water front, are often choked up by the tides, and their contents forced back upon the city. The cesspools at the street corner should be kept filled with water to prevent the escape of effluvia, and the strictest surveillance exercised over all the private sewers to see that they are properly trapped and kept in good order."

Hon. Wm. Alvord called attention to the need of reform in the matter of sewer construction and necessity for engineering control upon retiring from the mayoralty, but had already voiced public sentiment in his inaugural address, in which he said :*

"Our worthy retiring Mayor called the attention of your predecessors to the importance of having the sewers flushed out one or twice a week during the dry season, but the suggestion was not acted upon, and I deem it my duty to call your attention to the important matter, and to recommend that some action be taken to secure this object before the return of another dry season. * * * * I would advise before any action be taken in the matter, that our most eminent Engineers be consulted, and requested to furnish reports on the cheapest and best plan of flushing out the principal or main sewers. Some changes in the size, form and manner of constructing sewers for the elevated portions of the city may be advisable, and I think should be inquired into. There is a necessity for a new plan of draining the level districts by which the sewers can be kept free from deposits and deleterious gases."

To the necessity for a more scientific treatment of the sewage problem, Dr. Henry Gibbons, Jr., while Health Officer, repeatedly called attention. The following is from his report in 1873 : †

"But this is not all ; some of the sewers we have are

*Mun. Rep. 1871-72, p. 623.
†Mun. Rep. 1872-73, p. 344.

worse than useless, and the outlets of others are arranged in the worst possible manner. * * * Truly the winds are our salvation, as has so often been said. Nor is this an idle statement. Our statistics prove that nearly one-half of all deaths from zymotic causes occur in the four months, September, October, November and December, or after the summer winds, have ceased and before the rains have carried off accumulated filth. Our sister city, Chicago, has passed through a sad experience in regard to sewers. Cannot San Francisco profit by it rather than wait until some deadly scourge is at her gates? For five years prior to the construction of sewers in Chicago, from 1849 to 1885, the death rate was nearly 49 per 1000, or larger than in any city in the United States. In the succeeding six years, fifty-four miles of sewers were constructed, and the rate fell to 23 per 1000. For a third period of five years only 30 miles of sewers were constructed, while the population very greatly increased, and the rate increased to nearly 26 per 1000, and finally in a fourth period, the miles of sewers constructed being 80, the rate again fell to 23 per 1000. Comment is unnecessary."

Two years later Dr. Gibbons writes :*

"Unfortunately our sewer system is very objectionable, crude and expensive, and all works of magnitude, however urgent, are liable to delay from opposition by property holders. It does not seem just that one property owner should be charged a hundred dollars for what another has to pay but twenty, yet such is the operation of the present system. Undoubtedly the tubular or pipe sewer might be adopted in many cases where the brick sewer is now considered necessary, but these matters should be under the direct supervision of an engineer specially appointed for that purpose."

*Mun. Rep. 1874–75, p. 303.

Hon. James Otis, Mayor of the city, addressing the Board of Supervisors in 1874, said :*

"The very important manner in which many parts of the City are now drained, and the daily increasing difficulties arising, calls for immediate action, and should you deem it necessary to the purpose, further powers should be obtained from the Legislature to enable you to do what every sanitary precaution would demand. I would suggest that a general revision of the matter should be had, and should your Honorable Body deem fit, a corps of competent engineers employed to present some plan for your adoption."

A year later Superintendent of Streets, S. H. Kent, in his annual report, again calls attention to the need for competent control of street and sewer work.† "There should be a Board of Public Works. * * * * * *

"The reconstruction of our sewers, making them large enough to carry the gas and water mains should be seriously considered."

Mr. William P. Humphreys, at that time City and County Surveyor, may be quoted from his report for the years 1874–5 as follows :‡

"I have for years advocated before the Legislature the creation of a Board of Engineers, who should prepare a proper system of sewerage, laying down on their maps the size of each and every sewer, which size should be determined by the water-shed, the inclination of the sewer and the amount of house sewerage ; also a system of ventilation, for it has been found in cities in Europe where complete systems of sewerage have been established and the ventilation neglected, that malignant fevers followed, which,

*Mun. Rep. 1873–74, p. 647.
†Mun. Rep. 1874–75, p. 136.
‡Mun. Rep. 1874–75, p. 60.

upon close examination by Commissioners appointed for that purpose, were found to be caused by the want of proper ventilation; that being provided for, the fevers ceased, and those places are now amongst the healthiest in Europe."

Health Officer Dr. J. L. Meares, in 1877, says:*

"The only remedy is to place the construction and reconstruction of our sewers under the charge of a practical and scientific engineer, whose duty it shall be not only to recommend the specifications under which the sewers shall be constructed and reconstructed, but he, or one of his assistants, should supervise the building of the same, and require all the terms of the contract to be faithfully performed. The house drainage, being of equal importance, should also be placed under his supervision. No house should be connected with a sewer without his permit. He should be the judge of the material to be used and should see that the connection be properly made, with efficient traps and ventilation."

He repeatedly calls attention to the sewers in his annual reports, and in 1883 says:†

"Besides keeping the sewers clean by frequent flushing and thorough ventilation, I desire to call particular attention to the necessity of extending these sewers to deep water. They at present discharge their foul contents into docks, into shallow water and, in some instances, into basins within the sea wall, which wall, as it is extended, will obstruct necessarily, more and more of the outlets, thereby increasing this nuisance, which, in some portions of the city, is almost intolerable. I would also urgently call your attention to the grading and connecting the streets from

*Mun. Rep. 1876-77, p. 39.
†Mun. Rep. 1882-83, p. 390.

Potrero to San Jose avenue with Army street, that this great Army street sewer may be utilized by draining 1000 acres of the city territory. The large basin formed by Precita creek could then be filled in and this portion of the city made not only more healthful, but more desirable to live in."

Two years later, Dr. Meares says:*

"The filthy condition of many of our sewers south of Market street and in other portions of the city which are below grade, demands your immediate attention. Many of them are to-day and have been for months, filled to their arches with decaying vegetable and animal matter. By your ordinances you compel people to connect their houses with these sewers (elongated cess pools), the foul, offensive and noxious air from which penetrates their houses, producing not only discomfort but disease. During rain storms the sewage from these so-called sewers frequently overflows basements, dining-rooms and kitchens to the depth of two or three feet. I know of sewers in several blocks that have been in this condition for more than six months. The Superintendent of Streets informs me that he is powerless to clean these sewers for want of sufficient appropriation.

* * * * *

"I desire to call your attention to the disgraceful mode of disposing of the garbage of the city. I believe the dumping as at present practiced, to be one of the principal factors in the production of preventable diseases. Not only is this disgusting filth and garbage deposited on the mud flats of the Mission, but in other places equally objectionable, and in violation of all sanitary conditions."

And in his next annual report:†

"The defects of our sewerage system, especially south

*Mun. Rep. 1884-85, p. 228.
†Mun. Rep. 1885-86, p. 374.

of Market street and east of Montgomery street have been so much discussed that every citizen of ordinary intelligence must be satisfied that these defects should be remedied ; that large portions of this territory, with its buildings, must be raised, or pumping reservoirs established to force the sewerage into deep water. That expensive intercepting sewers must also be constructed. These improvements will necessitate the expenditure of a large amount of money. When undertaken, this great work must be completed in the shortest possible time, for the necessities of traffic, trade and travel will not permit of delay in its completion. * * * The construction of new sewers and the reconstruction of the old ones should be under the control of a sanitary engineer."

Hon. Washington Bartlett in his inaugural address in 1883 refers to the necessity of devising some means of relieving the choked and defective condition of the sewers. He says:*

"Much of the unhealthiness of the city, especially the southern portion, is attributed to the choked and damaged condition of the sewers. To a certain extent this condition of the sewers is due to neglect and defective construction. Certainly some comparatively inexpensive plan of flushing them and clearing out the accumulated contents can be devised which if faithfully carried out will in a great measure afford a proper remedy."

Superintendent of Streets, Thos. Ashworth, in 1887, refers to the necessity for devising a sewer system, in these words: †

"Considerable public attention has been given lately to the question of designing and adopting a proper system of

*Mun. Rep. 1882-83, p. 83.
†Mun. Rep. 1886-87, p. 409.

sewers, and I am satisfied that this will have to be done in the near future. I presume that the system or plan which will be most acceptable will be that which will aim to utilize, as far as possible, those which have already been constructed.

"With that idea in view, I have aimed to have all the sewers which have been constructed since my advent to this office built of sufficient capacity to suit the locality in which they are situated, and also large enough to receive and discharge the flow of all those which may be tributary to them."

And in his next annual report he says :*

"The large amount of sewers constructed during the past fiscal year indicate more than any other item in this report the material progress of the city. In almost every instance they have been recommended by either property-owners or by the Health Officer. As no sewer system has yet been devised which it is possible to adopt and have constructed in the near future, I have aimed to have those which have been built during my incumbency of this office so constructed that while they suit the exigencies of the present time, they will become a portion of any practicable plan which may be adopted in the future."

Hon. E. B. Pond, in his second inaugural address (1889), says :†

"Urgent necessity, as well as your pledge, requires you to take up the question of the reformation of the sewerage system.

"Steps should be taken at once to carry out your pledge in this regard. No hasty or ill-advised system should be adopted, and only after very careful consideration and under competent advice should you decide what steps are necessary to be taken."

*Mun. Rep. 1887-28, p. 377.

†Mun. Rep. 1888-89, p. 8 Appendix.

Prof. Davidson, of the United States Coast and Geodetic Survey, in his report to the Board of Supervisors, in April, 1886, says:

"I recall no city that is so peculiarly situated as San Francisco for its commercial and manufacturing advantages, and for its high possibilities in the application of the principles of sanitation—the increase of population depending upon the former, demands the development of the latter. Yet I fail to recall but one other where the sewage is in such a deplorably low condition; that exception is the City of Mexico.

* * * * * * *

"Even if these pest-breeding products were promptly carried out by the sewers, they would be deposited with the water among the wharves. This in itself leads to deposit around our city front, which if not removed by dredging, will make the waters lethean as those of Venice or Amsterdam.

"The sanitation of this city, as of all great cities, is a necessity that cannot be pressed aside; and we cannot ignore the experience of older municipalities that have struggled with defective plans until compelled by the exigencies of the case to adopt larger views and effective methods."

In the examination of the condition of the sewers and their effects upon the healthfulness of the city we are necessarily brought into contact with other prominent causes of filth diseases.

A study of the number of deaths occurring from diseases of this class in each ward is very instructive; and the relation between foul sewers, lack of proper outfall, and putrescent garbage heaps is distinctly shown. The subsequent table gives the number of deaths occurring in each ward from filth (zymotic diseases from July, 1872, to July, 1892—a period of twenty years.

DEATHS FROM FILTH (ZYMOTIC) DISEASES IN THE CITY OF SAN FRANCISCO FOR TWENTY YEARS—BY MONTHS.

YEARS.	January	February	March	April	May	June	July	August	September	October	November	December	TOTALS
1873	35	43	54	64	75	87	67	71	69	90	102	130	887
1874	88	45	65	46	60	69	102	79	83	88	58	54	837
1875	39	51	51	50	58	66	71	71	52	85	92	58	744
1876	58	67	62	68	65	157	143	165	196	184	182	223	1,570
1877	252	191	171	144	111	105	86	89	95	126	111	119	1,600
1878	107	73	60	50	48	56	75	91	80	71	59	70	840
1879	70	38	50	36	52	48	52	55	54	69	41	46	611
1880	35	35	36	55	16	46	64	67	53	45	73	68	543
1881	61	33	28	40	44	51	44	29	30	56	46	41	503
1882	77	84	110	44	60	71	67	62	75	68	67	71	856
1883	47	36	39	38	25	49	82	59	65	49	51	36	576
1884	41	54	55	38	43	66	85	57	63	58	45	44	649
1885	65	71	72	72	135	117	76	50	53	41	68	71	927
1886	57	47	52	57	65	46	76	65	66	76	73	83	758
1887	76	57	54	62	62	58	79	48	53	99	81	107	838
1888	89	64	42	64	64	68	91	65	54	58	69	53	781
1889	38	44	36	45	50	34	63	46	75	87	71	62	651
1890	80	33	51	61	42	81	124	99	58	102	113	101	945
1891	95	90	105	58	69	69	107	101	76	99	80	83	1,032
1892	85	79	71	55	71	80	79	76	62	68	50	50	816
	1,495	1,235	1,264	1,147	1,215	1,424	1,573	1,470	1,418	1,619	1,534	1,570	16,964

This table shows that there have been in the twenty-one years nearly as many deaths in the Eleventh Ward from filth diseases as in the two wards having the next highest number of deaths from these causes; and more than one-fourth the total number of deaths thus caused occurred in that ward. The total number of deaths in the twenty-one years from filth diseases in the city (exclusive of public institutions) being 14,883, and in the Eleventh Ward 4,248.

By far the larger part of the built up portion of the city drains into the upper end of Channel street and the streets immediately adjacent. This sewage matter is not carried off by tidal movement, but remains to a great extent in Channel street, and during the dry season in the lower reaches of the larger sewers. In addition to this, from 250 to 275 loads of foul and putrefying garbage are daily dumped in the low lands lying near the center of this ward. There are, therefore, very perceptible causes for the severe mortality above given. It must be observed that where any portion of the city is infected with filth diseases or causes favorable to their production and propagation, other portions, although remote, cannot escape, for in this class belong all of the infectious and contagious diseases. Even were the property holders in this large and wealthy ward willing to submit to the present conditions, it is the imperative duty of the city authorities to abate the deadly contaminations now existing within its limits. The prime problem to which our attention is being directed is the interception of the great volume of sewage now reaching this flat region, and its delivery into deep water having strong tidal currents. But before this can be done, much improvement can be made by a proper utilization of Brannan street sewer, and by the adoption of a rational and cleanly system of garbage disposal.

The relation between filth diseases and the incomplete flushing of sewers by rainfall is also marked. It is distinctly noticeable that as the dry season approaches and the condition of the sewers becomes worse by the accumulation of filth, the number of deaths from filth diseases increases. This relation is shown in the accompanying diagram, which shows the mean number of deaths from these diseases and the mean rainfall for each month from January, 1873, to December, 1892, inclusive (from 1888 to 1892 the lists include Mongolians).

Diagram

showing average monthly rainfall and average monthly rate of deaths from filth (zymotic) diseases in San Francisco from 1872 to 1893.

Curve of mean monthly rainfall

" " " " rate of deaths from filth diseases

" " actual " " " " " " " "

This study shows that even the flushing possible under the conditions does some good, and it is reasonable to infer that were the sewer system remodeled so as to permit of complete flushing that many of the causes now producing a very high death rate from preventable diseases would be removed.

TABLE SHOWING NUMBER OF DEATHS IN EACH WARD FROM FILTH DISEASES FROM 1872 TO 1893.

YEAR.	1st. NO.	2d. NO.	3d. NO.	4th. NO.	5th. NO.	6th. NO.	7th. NO.	8th. NO.	9th. NO.	10th. NO.	11th. NO.	12th. NO.	TOTAL NUMBER.
1872-3....	34	62	6	38	3	24	35	40	48	99	94	67	550
1873-4....	48	62	8	34	11	24	61	71	71	164	139	88	781
1874-5....	42	60	6	28	8	25	65	57	69	97	115	58	630
1875-6....	46	59	4	45	2	20	72	48	73	116	194	92	771
1876-7....	94	138	18	126	6	41	90	121	169	292	426	180	1,701
1877-8....	47	85	6	45	4	21	48	48	74	135	277	122	912
1878-9....	42	44	3	39	4	21	34	33	42	99	200	85	646
1879-80...	20	33	2	30	4	6	26	29	39	75	130	68	462
1880-1....	27	52	5	20	2	14	23	29	45	88	114	57	476
1881-2....	19	58	8	29	2	17	54	29	45	72	121	86	540
1882-3....	15	40	5	57	5	23	18	20	35	52	141	111	522
1883-4....	25	40	6	44	2	23	17	30	44	69	156	81	537
1884-5...	25	61	3	67	1	34	18	47	82	124	167	116	745
1885-6....	16	47	1	33	1	22	25	29	102	60	204	97	636
1886-7....	13	45	3	22	7	24	31	38	88	75	213	120	679
1887-8....	24	42	6	46	7	23	36	42	70	76	214	130	716
1888-9....	28	34	12	37	2	9	17	22	49	74	153	84	511
1889-90...	31	65	6	42	3	13	38	21	31	84	169	106	609
1890-1....	14	58	4	40	5	28	41	51	28	156	387	123	935
1891-2....	25	52	5	43	6	19	47	48	45	103	346	134	872
1892-3....	21	41	3	56	5	9	25	27	32	52	288	92	651
Totals....	656	1168	120	921	90	440	821	879	1281	2162	4248	2097	14,883

To the extracts and comments made in reference to the lack of system in the matter of drainage and sanitation a few general remarks may be added.

With sewage outfalls all around our water front from

Pierce street on the north to Islais creek on the south, with Mission flats so fouled with garbage, street sweepings and sewage that no lead paint can withstand the tarnishing effect of the contaminated air to the leeward, with countless filth repositories on, or connected with every line of, sewers, and with structural defects that entail great annual expense of repair and maintenance, it is not surprising that the necessity for seeking a remedy was at last recognized, and resulted in the appointment of a Board of Engineers.

The appointment of the Board of Engineers and later of the Engineers in Charge does not fully accomplish what is so much needed—engineering control and engineering supervision of sewer construction. But while at work devising a sewer system, which duty has been specifically assigned to the Engineers in Charge, they can to any extent desired by the Honorable Board of Supervisors in matters pertinent to their work be requested to serve in the capacity of Advising or Consulting Engineers, and in this way we and the original Board of Engineers have had frequent occasion to serve the city.

During the current fiscal year we had hoped to be permitted to take the initial steps to effect improvements in the interest of better sanitation.

We had hoped that such changes in the apportionment of flow to the various sewers could be made at our suggestion that would prevent the possibility of floods near Howard street from Fourteenth to Eighteenth streets, at Market and Jones and Market and McAllister streets, and at several points in the northern portion of the city.

It was also hoped that before next summer means would be found for carrying out works to divert the entire flow of sewage proper, except during heavy rainstorms, from Channel street to a temporary outfall directly into San Francisco bay. But we fear that the limited funds set aside for these purposes will not be sufficient to fully carry out these much needed modifications.

ORGANIZATION
OF
THE BOARD OF ENGINEERS.

ITS WORK AND SUBSEQUENT PROCEEDINGS.

The Board of Engineers to Devise and Provide a System of Sewerage was organized under Resolution No. 6612 (Third Series) adopted March 7, 1892.

The proceedings had in the Board of Supervisors which had a bearing upon or led to the creation of the Board of Engineers are set forth in detail in the Appendix to Municipal Reports of 1891–92, pages 214–229.

A special message from the Mayor, Hon. E. B. Pond, dated May 7, 1887, is there cited, which calls attention to the sewers and to the wish of some citizens to have an expert engineer report as to the most feasible plan of putting the sewerage system into good condition. The Mayor's message having been referred to the Street Committee, the necessity for some action was emphasized by that committee, but it had no definite results, and the whole matter remained in abeyance.

The Board of Supervisors is empowered by the Consolidation Act and other laws defining its powers, upon the recommendation of the Superintendent of Streets and Highways, to authorize work that may be essential for the safety of life or necessary for the public health, and to set apart money for this purpose in the Street Department Fund.

The Superintendent of Streets and Highways in his official report for the fiscal year 1890–1, made the following recommendations:

"The sewerage question still remains the most impor-

tant of all questions which concern the public health. The formulation of a general plan adapted to the necessities of the inhabitants and the proper drainage of the city is still unperformed. This work your Honorable Board should attempt in the near future. It is true that many of the outlying districts can be effectually sewered by special plans or local systems, as has been done in the Point Lobos district, and can be done in all portions of the city and county, outside the charter line of 1851, but the necessity for a general plan, embracing those local systems wherever their outlets come inside the said charter line, is increased and not diminished by their construction. The sewers heretofore constructed in this city reach the waters of the bay through outlets which are all under water at high tide. The sewage matter is thus backed up along the lower levels, creating a nuisance which cannot be abated by any exertion I may make. To remedy this evil, competent engineers should be employed to prepare a plan for sewering the entire city."

On January 25, 1892, after having had the matter under consideration for some time, a report was made by the Street Committee of the Board of Supervisors, in which the history of the several efforts to secure a comprehensive plan was set forth and it was recommended that premiums be offered for complete plans. The offers were to be so liberal that the best engineers in the country would be induced to compete. This committee report is replete with valuable suggestions. It led to the conference of a committee from the Board of Supervisors with Prof. Frank Soulé of the University of California.

The Street Committee made a second report on March 7, 1892, and by unanimous vote at that time the following resolution was passed by the Board of Supervisors:

"Resolution No. 6612 (Third Series)—RESOLVED, That Professor George Davidson of the United States Coast

and Geodetic Survey, Col. George H. Mendell of the United States Engineers and Irving M. Scott, Esq., be and are hereby empowered to select and appoint two engineers, and when the same are so appointed that they, with the gentlemen named, shall constitute a Board of Engineers on and from September 1, 1892, to devise and provide a system of sewerage for this city and county, as proposed in the report of the Committee on Streets, etc., of this Board made January 25, 1892."

On Tuesday, July 21, 1892, the three members named in the above resolution met in the office of the United States Coast and Geodetic Survey, and organized by electing Prof. Davidson President, and Mr. Scott Secretary, and made preliminary arrangements for securing permanent rooms for the transaction of the business of the Board.

On August 8, 1892, the Board again met and notified the Board of Supervisors of their acceptance of the duties imposed upon them by resolution No. 6612, above quoted.

At this meeting the following resolution was adopted :

"RESOLVED, that Marsden Manson and C. E. Grunsky be appointed as the two civil engineers to complete the Board of Engineers as contemplated by resolution No. 6612, adopted by the Board of Supervisors, March 7, 1892, provided, they agree to devote their entire time to this work after being officially notified by President Davidson."

Subsequent to the passage of resolution No. 6612, the Board of Engineers were authorized to commence operations before the 1st day of September, as intended by the original resolution.

On August 27, 1892, the Board met. The additional members named in the resolution of August 8th attended, filed their letters of acceptance and were declared qualified members of the Board. Final organization of the

Board was then made with Prof. Davidson as President, and Mr. Scott as Secretary.

The work outlined and inaugurated for a study of the problems before the Board was as follows :

1st. An examination of the present sewer system of this city for the purpose of ascertaining the condition of the sewers in respect to permanence of construction and serviceability.

2d. The preparation of a complete topographical map of the city and county on the basis of all available data. This map to be upon the scale of 1 inch to 600 feet. showing alignments and elevations of streets, and the detail topographical features expressed in contour lines.

3d. The materials, alignments, depths, sizes, grades and exact conditions of existing sewers to be graphically represented upon large atlas sheets upon a scale of 1 inch in 100 feet.

Although thus promptly organized and prepared to discharge its duties, the Board found legal questions raised as to its status and authority. The Auditor refused to audit bills for services and materials, and these matters had to be passed upon by the District Attorney, who gave an able and exhaustive opinion sustaining the legality of the action of the Supervisors and pointing out the urgent needs which had called forth such action.

It was not, however, until the middle of December, 1892, that the questions and doubts thus raised had been finally settled.

The Board held regular weekly meetings at which the petitions for changes or establishment of grades, for the construction of sewers, or for the remedying of nuisances, were acted upon ; also specially called meetings whenever the matters thus before the Board required prompt action.

There were thus referred to the Board from its organization to February 1, 1893 :—

Eighteen (18) petitions and protests for changes or establishment of grades.

Three (3) petitions for advice as to the correction of prominent defects in the existing sewer system of the city ; besides numerous personal interviews were had and individual letters presented.

During the meeting of February 1, 1893, a certified copy of Resolution No. 8265 (Third Series), adopted January 30, 1893, was received from the Clerk of the Board of Supervisors. This resolution is a follows :

"Resolution No. 8265 (Third Series)—RESOLVED, That the services of the Sewerage Commission, consisting of Col. G. H. Mendell, Professor Davidson, Irving M. Scott, Marden Manson and C. E. Grunsky, appointed by the last Board of Supervisors, be dispensed with after the 1st day of February, 1893 ;

"RESOLVED, That the work of said commission be continued under the supervision of Marsden Manson and such assistants as may be required, under the control and direction of the Committee on Streets and the City and County Surveyor.

"RESOLVED, That the salary of said engineer be fixed at $250.00 per month, commencing February 1st, 1893."

After short discussion the following resolutions were passed :

"RESOLVED, That the services of all persons in the employment of the city under the direction of this Board of Engineers are hereby dispensed with, to date from the close of the first day of February, 1893, and that Mr. Manson be directed to notify them accordingly ; and it was further

"RESOLVED, That all books, papers, records, maps, im-

plements and other property appertaining to this Board, being the property of the City and County of San Francisco, be and are hereby turned over to Mr. Manson as custodian for the city."

The President was authorized to certify all claims for services accruing on February 1st, 1893.

The Board then adjourned sine die.

On February 2d, in pursuance with the duties imposed by the resolutions above quoted, all parties in the employ of the city under direction of the Board were discharged, and the following letter was sent to the Board of Supervisors by Mr. Manson:

"I have been instructed by resolution of the Board of Engineers, adopted at their final meeting on January 31st, 1893, to report to your Honorable Board that during the meeting referred to a certified copy of Resolution No. 8265 (Third Series), adopted by your Honorable Board on January 30th, 1893, dispensing with the services of the members of this Board after the 1st day of February, 1893, and that upon receipt thereof the following resolutions were adopted:

[Resolutions above quoted.]

"At this final meeting Mr. Grunsky reported that all petitions relating to the change of grade and other matters referred to this Board by the Board of Supervisors had been acted on and reported upon, except Resolution No. 8217 (Third Series), referring to the necessity for sewers in the Mission road.

"All accounts against the Board for work, material furnished and for services rendered by employees were allowed and ordered certified to your Honorable Board.

"When the meeting adjourned it adjourned sine die.

"In relation to the continuance of this work by me,

under the control and direction of the Committee on Streets and the City and County Surveyor, at a salary of $250.00 per month, I desire to state that this proposition is respectfully declined.

"In submitting this record I have also to report that of the $34,450.00 available at the time of the organization to the close of the 1st day of February, 1893, $4,117.45 have been expended for services and materials. This expenditure does not include the salaries of the members of the Board, which salaries have not been fixed by your Honorable Board.

"The data in my charge as custodian is not in a condition to be placed on record, but can be put in this condition and be available at any time in the future at an expenditure not exceeding $800.00, exclusive of my services. This data relates principally to the actual condition of the 170 miles of sewers which have been examined as heretofore reported. It is essential at least to put this data in proper form as above outlined."

Appointment of Engineers in Charge.

After several conferences with the members of the Street Committee, the following resolution was passed by the Honorable Board of Supervisors on February 6th, 1893:

"Resolution No. 8234 (Third Series)—Resolved, That Marsden Manson and C. E. Grunsky be and are hereby appointed (to date from February 1, 1893) as engineers in charge to devise and provide a system of sewerage for this city and county, and to carry on and complete the work of collecting and compiling the data relative to the condition of the present sewers, at a compensation of $275 each per month; the said engineers to report monthly the work done during the preceding month, the cost and other infor-

maps and estimates as may be required by the Board from time to time and all other acts heretofore had in the matter by the Board relative to appointments is hereby ratified."

The Board was notified on February 14th of the acceptance of the duties thereby outlined by the engineers named therein, and work was at once resumed on the lines previously laid out.

The following is a summary of the work done from the organization of the Board to July 1, 1914:

The existing sewers aggregating about 200 miles in length have been examined and their general condition noted in thirty-two field books. These note books were supplemented by a daily report giving a condensed account of the work accomplished each day. All sewers through which it was possible to pass have been examined as to workmanship and general condition. In some instances where apparent loss could not otherwise be obtained the sewers have been segmented. The tests thus ascertained are being reduced to tabular form, and 248 sheets of these tables have been made out. The alignments, profile, grades, manhole and catchbasin etc., are being plotted upon atlas sheets on a scale of 100 feet to one inch. Seventy of these atlas sheets are complete but are in progress, and about forty more will be required to cover the built up area of the city.

The need of an accurate map showing in detail existing sewers and grades, and the exact topographical features of the city and vicinity led to the preparation of a large map, forty feet square or one inch to one hundred feet or 1:1200. This map has been nearly completed. It has shown that the available data from city surveys and records, from the United States Coast and Geodetic Survey, from the

records and maps of the United States Engineer Department, and from reliable private surveys of all kinds, will permit. Whenever necessary, special surveys were made by this office to connect up isolated surveys, or to remove errors or doubts in the existing data.

This map is intended to serve as a basis for the division of the city into natural sewer or drainage districts, and for a full study of the lines of main drainage.

It was found necessary, in determining the grades of the existing sewers, to run lines of levels through many streets. This was particularly necessary in the portions of the city which have been reclaimed from tidal or marsh lands. Over these areas settlements have occurred since construction, which settlements have aided in making the grades more irregular than originally constructed.

Data as to the area and character of paved and unpaved streets, and the number, position, size and character of storm water inlets ("cesspools") is also necessary in the study of the problems before us. A small party is therefore engaged in collecting this information, and at the same time determining the exact location of all manholes. This data is not available in any records, and will be put in shape to be of permanent record and use in the Street Department.

RECEIPTS AND DISBURSEMENTS FOR THE FISCAL YEAR ENDING JUNE 30, 1893.

RECEIPTS.

Appropriation of July 1, 1892.....	$35,500.00	
		$35,500.00

DISBURSEMENTS.

By Wm. P. Humphreys, Esq., engineer in charge of collection of data.....	$1,062.00	
By Board of Engineers to devise and provide sewer system—		
Office work.....	$4,446.03	
Sewer examination	2,473.72	
	6,919.75	
By Engineers in charge to devise and provide sewer system—		
Office work.....	$3,058.23	
Field work.....	297.00	
Engineers' salaries.....	2,750.00	
Sewer examination	2,343.83	
M. H. Elevations	736.91	
M. H. Distances.	235.65	
Current observations	857.83	
	$10,279.77	
		$18,261.52
Balance in hand		$17,238.48

RECAPITULATION.

Total amount services	$17,082.10
Total amount materials, expenses	1,179.42

Respectfully submitted,

MARSDEN MANSON,
C. E. GRUNSKY,

Engineers in Charge to Devise and Provide Sewer System.

SUPPLEMENTAL REPORT

IN COMPLIANCE

WITH RESOLUTION NO. 9157, (THIRD SERIES.)

Abolishing the office of Engineers in Charge to devise and provide a system of sewerage and terminating the work.

SAN FRANCISCO, CAL., September 30th, 1893.

To the Honorable Board of Supervisors
City and County of San Francisco.

GENTLEMEN :—Complying with instructions contained in Resolution No. 9157 (Third Series which provides that this Department be abolished from and after September 30th, 1893, and that the "Board of Engineers are hereby required to turn over and file in the office of this Board all maps, books, data, etc., with a full report on or before said date," we have turned over to you all maps, books, papers, furniture, material and other property under our control as per inventory hereunto attached, and hold the receipt of your Clerk for the same.

In our Progress Report, submitted under date of July 15th, we have clearly set forth the defects of the present system of administrative and executive control of public works in this city, with especial reference to sewers, and have cited a sufficient number of instances of evils resulting from divided official responsibility, faulty design, carelessness, ignorance, and fraud, to convince every intelligent

citizen of the need of a better system of planning, directing and managing public works as well as of the need of a comprehensive system of sewerage, which has long been recognized and is daily increasing. To this Progress Report we have but little to add.

In a reply to a communication from Wm. Broderick, Auditor, at the close of the last fiscal year, copies of which were sent to his Honor, L. R. Ellert, the Mayor, and to the chairman of the Finance Committee, we called attention to the urgent necessity for abating many of the serious nuisances created in different parts of the city by defects in the sewers for which the city is responsible and recommending that $100,000.00 be made available to be expended under our supervision, for work planned by us for the protection of the health of the people.

For the prosecution of the work with which we were specially charged, the devising of a system of sewerage, we requested that $20,000.00 be made available, and also emphasized the necessity of making surveys to serve as a basis for establishing grades throughout those portions of the city where not already established, and of correcting grades where a revision was essential.

It was considered impossible to comply with these recommendations although the urgency of them was not questioned. In their stead the sum of $40,000.00 was set apart to be expended for modifications of the flow of sewage and the expenses of this office. We thought we had reason to expect more in view of the importance of our work, its recognized necessity, and the fact that we had turned into the general fund an unexpended balance of $17,238.48 at the end of the last fiscal year, which had not been expended because it would not have been to the best interests of our work to use it, as explained in our Progress Report. We received no intimation as to the apportionment which we were to make of the $40,000.00 set apart for our use, but

the necessities were such in some portions of the city, where there have been annually recurring outflows of sewage from the sewers into the streets, yards, cellars and even houses, notably in the low portions of Eleventh Ward, that we were impelled to plan corrective works and suggest remedial measures as outlined in our two reports dated September 7th, 1893.

The plans and specifications for these works are now on file among the papers turned over to you by us. They do not by any means cover all the work which we had intended to recommend as necessary to correct the most glaring of that class of present evils whose existence is chargeable to a bad administrative system and the negligence, incompetence or corruption of representatives of the city. But these improvements are the most important and would if carried out have involved an expenditure estimated by us at $27,000.00, being as great an amount as we thought ourselves justified in expending out of our limited appropriation.

They were not planned as a part of any proposed comprehensive system, but are intended to make efficient some of the principal existing sewers. Had a greater fund been made available for such corrective work, we should have suggested among many minor changes the improvement of Fell Street sewer on Fourteenth Street between Church and Dolores, where its grade needs correction; a change in Seventh Street sewer where, at Townsend Street, the extension toward Channel Street was this year constructed twenty inches higher than the bottom of the old sewer north of Townsend Street, and to this extent permits the accumulation of filth, and is an obstruction to the flow of sewage down Seventh Street;* a correction of grade in Sixteenth street sewer near Folsom street where there is a

* Concerning this matter we sent a communication to the Superintendent of Streets, on June 24, 1893.

slope the wrong way; some corrective work near Pacific and Davis Streets where the continuity of the Pacific Street sewer is interrupted by a sudden rise of two and one half feet; besides the improvement of scores of sewer crossings in all parts of the city.

The necessity for the immediate carrying out of some corrective work was forced upon our notice in making a study of the character, condition and serviceability of the existing sewers, and we have recommended some of this necessary work, believing ourselves authorized to act in such matters at least in an advisory and supervising capacity by the resolution under which we were appointed and which directs us "to devise and provide a system of sewerage for this City and County."

We have had frequent occasion to advise the Superintendent of Streets concerning sewers required in different parts of the City, and also in the matter of abating nuisances created at outfall points, notably in the case of Potrero Avenue sewer and the Army Street sewer.

Concerning these sewers we quote from our letters of May 25th, 1893:—

"We have at your request examined into the possibilty of providing a permanent or temporary extension of Potrero Avenue sewer to Army Street and find that two propositions will have to be considered.

1. It is possible to extend the sewer directly across private property along the line of the proposed Potrero Avenue extension to Army Street.

2. A permanent brick sewer can be put into Yolo Street eastward from Potrero Avenue to Nebraska Street and along Nebraska Street and San Bruno Road to Army Street.

The second project will involve some deep trenching as the official street grade at Yolo and Nebraska Streets is

eighteen feet higher than at Potrero Avenue and Yolo Street, but the improvement will be of permanent character.

Along the first route a permanent sewer will not be advisable until a right of way shall have been graded because it crosses swamp land. The great expense which will be necessary to afford secure support to a permanent sewer in advance of grading would not be justified.

The construction of a wooden box sewer supported on piles along the first route, although apparently a desirable solution will probably, in connection with the cost of the right of way, be very much more expensive than the permanent deflection of the sewer along the second route. We therefore recommend :—

1. That a brick sewer, (3 x 5) be constructed in Yolo Street, from Potrero Avenue to Nebraska Street and along Nebraska Street and along San Bruno Road to Army Street sewer.

2. That the flow of the sewer on 25th Street be turned northerly into Potrero Avenue and this proposed Yolo Street sewer.

Should this recommendation be carried out, we will be pleased to outline the special requirements which should be prescribed."

" Complying with your request of May 13th, for information as to the result of our examination of the outfall of the Army Street sewer, and asking us to suggest the proper treatment of the outfall into Islais Creek, (property owners having petitioned for relief,) we now desire to report as follows :

There is a large brick sewer along Army Street which discharges at the east line of San Bruno Road into a wooden box sewer. Just east of San Bruno Road, where the sewer crosses Precita Creek, (the north arm of Islais Creek,) there is a break in the side of the wooden box sewer, through which at present all sewage collected by the

Army Street sewer escapes. The wooden sewer, after crossing Precita Creek, follows the center line of Army Street to Kansas, turns south into Kansas, thence east into Marin Street and terminates at a point 50 feet east of Kansas Street.

The wooden sewer is apparently in good condition near its outlet on Marin Street and for a short distance along Kansas toward Army Street. Near Army Street, on Kansas, it has been crushed by the weight of the fill which it had to support. At this point its bottom is about twenty feet below street grade. At several points on Army Street, between Vermont and Kansas, a settling of the street surface indicates that there are other points where the sewer has collapsed, but this could not be positively ascertained without uncovering the sewer, because, owing to deep deposits, the sewer was not accessible at the manholes.

The outflow from the break in the sewer at Precita Creek, before reaching the well-defined water way of Islais Creek, spreads over the flat surface of the swamp, and there is no question that some provision should at once be made to secure a better point of outfall.

The wooden sewer along Army and Kansas Streets to Marin Street is useless; it cannot be repaired. By reason of its gradual collapse, it destroys uniformity of the street surface and causes dangerous obstruction to traffic. It should be removed. We recommend:

1. That the wooden box sewer in Army and Kansas Streets be removed.

2. That the Army Street brick sewer be extended along Army Street to Kansas Street and along Kansas to the north line Marin Street.

3. That a wooden box sewer of capacity for sewage only be carried thence along Marin Street to Rhode Island and Mazzini Streets to an outfall into Islais Creek channel.

4. That at the crossing of Kansas and Marin Streets a storm water overflow and wooden box be provided to discharge storm waters in times of heavy rain into the swamp on the line of Precita Creek channel.

The wooden extension and storm water overflow are intended as temporary structures which will serve until such time as it becomes necessary to again extend the main brick sewer.

If it be decided to carry out these recommendations we will be pleased to further outline special requirements that should be prescribed for this work."

The several matters above referred to have but little bearing upon the main work with which we have been charged, the devising of a comprehensive system of sewage which has been summarily terminated in a very unsatisfactory and incomplete form by your resolution of September 11th. As explained in our Progress Report it is essential that the system should be planned with due regard to the probable growth of the city, so that without reconstruction of main lines the system can be adapted to further requirements.

Although we are not now prepared to fully endorse any project we feel it our duty to submit at this time a brief outline of some of the measures which we believe will have to be intelligently and honestly carried out before this community will have received from the proper authorities that relief which it is of right entitled to demand.

The open water way on Channel Street (defined as navigable as far west as Harrison Street by statutory enactment in 1868 and again in 1892) receives the sewage from an area of over 5,000 acres, inhabited by probably more than 100,000 people. Channel Street sewer, the largest in the city, terminates in this open water at 9th Street, about a mile from the present water front of the city. All the sewage contributed, by this sewer and by 8th, 7th, 6th, 5th,

4th and 3rd Street sewers ebbs and flows here creating a nuisance which must be abated.

It will be necessary to reduce the flow of sewage toward Channel Street by an intercepting sewer, and the best location for an intercepting sewer will be along Market Street commencing at some point near Castro Street.

This intercepting sewer would receive the entire flow of sewage from the Western Addition and would reduce the area tributary to Channel Street, nearly one half. But there are difficulties in the way of its construction and it is important to select a proper point of outfall.

Market Street grades have been improperly established, notably so at 5th Street where the street is low, and also at points southwestward from 10th Street, at some of which changes have long been under discussion and if carried out will facilitate and materially cheapen the construction of any main sewer along Market Street.

During August and September of this year, we have been collecting data concerning structures already in place along the route of possible main drainage lines, particularly that relating to the position and depth of conduits for gas, water and electricity and of cable road junctions and intersections. On the basis of this information and additional rainfall data to be collected this winter, it was proposed to fully discuss the desirability of the Market Street intercepting sewer. We had already found by a preliminary study of the results of current observations made by us this spring, that the foot of Powell Street seems to offer particular advantages as an outfall point for a sewer. To reach this point with the Market Street sewer it will be necessary to turn northward from Market Street into Kearny Street, along Kearny Street to Telegraph Hill, thence by tunnel on one of several possible routes to the northern slope of the Hill and thence to the outfall point.

It can hardly be questioned that the sewer must be made

to serve both for sewage and a limited amount of storm water, but excessive volumes of storm water can be discharged at several points into the main sewers having reasonably direct lines to the bay.

Care must be taken in considering this project to keep in view a probable extension of this sewer further westward to a more remote point of outfall without re-construction other than connection with the system as now outlined, permitting a further utilization of the Powell Street outfall as a relief outlet for flood water.

Whenever it may become necessary to perfect the system of intermittent discharge of sewage into the ebb flow of the tide, it will be necessary to construct a large receiving tank from which there will be a rapid outflow at the proper time. There is nothing original or novel in such an arrangement, but in the case of San Francisco such an outfall system can probably be so arranged that the receiving tank will be in the form of a tunnel or a series of tunnels terminating at or near Fort Point. The flushing and cleansing of long tanks properly located can be accomplished by trapping sea water at high tides at the upper ends of the tanks.

The main sewer along Market Street cannot serve the more southerly portions of the Mission Bay district for which separate provision must be made.

The sewage from the greater part of the district west from 9th and Utah Streets and south of Market Street, can all be concentrated as at present near Ninth and Channel Streets, but it will arrive there at an undesirably low elevation.

From this point it can by proper arrangement of works be delivered to the bay by gravity flow, but its course should not be through the open water way of Channel Street, it should be along Brannan or some other parallel street. It is hardly necessary to say that if it be carried toward the

bay on such a route that it does not seem probable that any plan can be devised for a delivery of this sewage into the bay with sufficient assurance that such delivery will not in time become offensive and create a nuisance that must be abated.

A delivery anywhere near the foot of Channel or Brannan Streets is therefore not to be considered except as a temporary expedient. The sewage conduits from a large district, must, however, by reason of topographical features be made to concentrate their flow somewhere near the points indicated, and the sewage there delivered must ultimately be forced to a better point of outfall into the bay. When it becomes necessary to carry out this part of any proposed system it will probably be found advantageous to pump this sewage to the same conduits in use for the central parts of the city. This project involves the preservation and utilization of present sewers when properly corrected for grade. Storm waters of the district can be admitted into the sewers and storm water overflows should be provided. During the flood flow in the months of winter there will then be a direct outflow of greatly diluted sewage into the bay on the eastern front of the city, but at all other times no sewage will there be discharged.

Our float observations and studies of direction of drift in the bay make it appear very undesirable to discharge large quantities of sewage at or near Potrero Point, but indicate that an outfall could be maintained at Hunter's Point for an indefinite time without polluting the waters of the bay to an objectionable extent. For this reason it will be necessary to plan for concentration of the sewage from the southern and high portions of Potrero Hills and the Islais and Precita Creek districts at some convenient point or points from which sewage can be delivered at an outfall at Hunter's Point either by gravity flow or pumping. Provision must here again be made for a delivery of storm

waters during periods of excessive flow from main lines of sewers into the bay, through relief outlets, so that it will not be necessary to provide a great capacity for the outfall sewers, and that it may not become necessary to pump large amounts of storm waters.

But in this district more than any other, a revision of officially established grades should be had before details of the system be prescribed.

The sewage of Bay View and Visitacion districts will have to be treated in the same manner as that of Precita and Islais Creek districts whenever increased population renders the carrying out of a local system necessary. One outfall at Hunter's Point will serve these districts in conjunction with those on its northern slopes.

In that portion of Buena Vista Bay district lying east of Kearny Street and north of Market Street (including probably the low portions of the city northwest of Rincon Hill and northeast of 2nd Street,) it will be well to separate sewage from storm waters entirely. The number of large sewers in this district must be reduced and suitable provision must be made to keep those intended for rain water free from filth accumulation during the long dry season. For sewage proper a separate system may be introduced to advantage, and delivery can be made to an intercepting sewer somewhere near the water front which will enable temporary disposal at the proposed Powell Street outfall or ultimately a discharge into the same works that are required to effect the removal of the sewage from the Market Street system to a more remote point of outfall.

The sewage from the North Beach district can readily be carried to a Powell Street outlet, which is the natural and best temporary outfall point for the sewers of this district.

For the Washer-Woman's Bay district a number of projects are feasable, but that which we would have probably endorsed involves the construction of a main sewer along

the lower portion of Pierce Street, into which two intercepting sewers along the water front are to discharge and which will deliver the entire sewage and rain water flow of the district at a point in the bay sufficiently removed from the shore line to insure thorough dilution of the sewage, making it very improbable that it will become offensive to sight or smell. Here again works should be so planned that their extension to a more remote outfall point will not necessitate re-construction.

That part of the Presidio district for which provision must be made in connection with the planning of a general system, embraces but a few blocks of land south of the Presidio Military Reservation, extending from Lyon Street to First Avenue. This locality is being rapidly built up. It is a very desirable residence locality, and at the present time its sewage is delivered upon the surface of the ground at the south line of the Reservation on Locust Street, creating a nuisance at that point on the Reservation which should at once be abated. As discussed by our Board of Engineers, before the re-organization of February, the best project for relief, and one which has already been sanctioned and approved by the proper authorities of the U. S. War Department, is to carry the outfall sewer diagonally across the southeastern corner of the Reservation to a connection with the sewers of the Washerwoman's Bay district. Throughout the greater portion of this route the sewer will be in a tunnel.

Concerning the outfall sewer of the Lobos Creek district, which includes the Richmond district, now about to be constructed, a work which has been devised by preceeding administrations and which is recommended for construction by other city officials, we have only to say that our study of the district has not been completed; and that we appreciate the imperative necessity of providing an outlet for this region, even though such outlet be temporarily but an open

water way, but we have had no opportunity of critically examining the work now about to be constructed.

The devising of the system of sewers for the Ocean Beach and the Laguna de la Merced districts, should not present special difficulties except as to disposition to be made of the sewage. We are not prepared to offer any suggestion in this connection, except that one project of concentrating it at some point of the coast near the southern limit of the county and there delivering it into the deep water of the ocean, must be considered and its merits determined.

In the further study of these projects it will be necessary to determine the maximum rate of rainfall for short periods of time as already referred to in our Progress Report. This rate is now known for twelve and twenty-four hour periods, and examples of maximum rates are noted in that Report. In order to properly adjust the capacities and dimensions of main lines of drainage it will be necessary to observe and record the rate for hourly, half-hourly, and quarter-hourly intervals, and it will even be desirable to know the rate for five or ten minute intervals, because the rate of fall is the controlling factor in determining the maximum service which the main lines of drainage will be called upon to perform. It is imperative that this data should be collected during the coming season.

As a general basis for the study of areas and topographical features of the several districts to be drained we have prepared a contour map of the city (600 feet to the inch) which is also reliable as a grade map. For a guide as to character, position, and serviceability of existing sewers, information has been put, as rapidly as the means at our disposal justified, upon detail sheets (100 feet to the inch). Twenty-seven have been practically completed and some work has been done on seven others. When extended over the built up area of the city there will be about sixty

in all. The information concerning the sewers for all of these is contained and is readily accessible in the field books which we have turned over to you.

EXPENDITURES FOR SEPTEMBER, 1893.

Salaries of Engineers in Charge	$550.00
" Employees	732.18
Materials and Expenses	91.62
Total	$1,373.80

RECEIPTS AND DISBURSEMENTS FROM JULY 1ST TO SEPTEMBER 30TH, 1893.

RECEIPTS:

Appropriation of July 1st, 1893	$40,000.00	
S. F. & S. M. E. R. R damages In Treasury	7.50	$40,007.50

DISBURSEMENTS:

Month of July, 1893	$1,659.45	
" August, 1893	1,559.75	
" September, 1893	1,373.80	$4,593.00
Balance		$35,414.50

Very respectfully.

MARSDEN MANSON,
C. E. GRUNSKY,
Engineers in charge to devise and provide a sewer system.